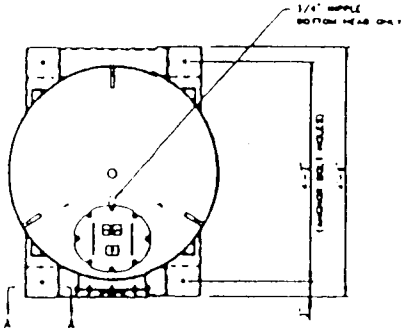
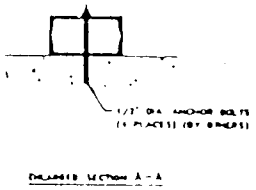
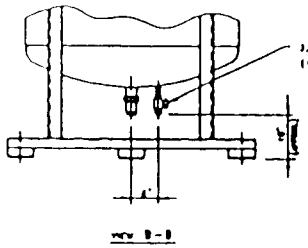
APPENDIX G







NOTES:

1. STANDARD ADAPTER (SUPPLIED WITH VESSEL)
   PIPE, 2" SCH 40 GALVANIZED STEEL (GROOVED TO MATE)
   PART # 330733 (DWG # B-101301)

2. ADAPTERS AVAILABLE AT EXTRA COST:
   A - PIPE, 2" PVC SCH 80 (GROOVED TO PLAIN) PART # 330156
   (DWG # B-101333)
   B - PIPE, 2" PVC SCH 80 (GROOVED TO MATE) PART # 330170
   (DWG # B-101340)
   C - GROOVED TO 150# R/F FLANGE SCH 40 STEEL, 2" PIPE ADAPTER KIT
   - PART #700001 (DWG # B-101301)

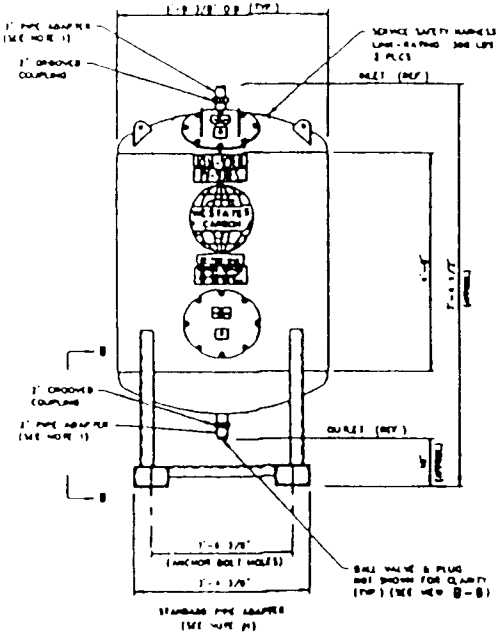
3. DESIGN DATA:
   48" DIAMETER PRESSURE VESSEL - 50 PSIG (MAX)
   @ 150°F - 1007 ASME CODE STAMPED
   FOR WATER USE ONLY
   30 GPM
   1000 LBS. ACTIVATED CARBON

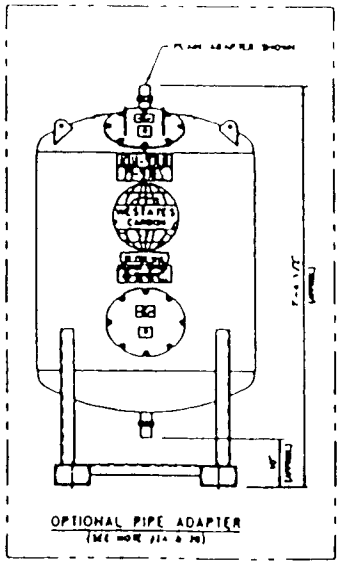
4. MATERIAL:
   HEADS - SA 570 GR. 36
   SHELL - SA 36 GRADE C
   SAND - SA 36

5. SURFACE PREPARATION:
   INTERIOR:
   SANDBLAST: SSPC-SP-5-63 WHITE METAL
   ABRASIVE: GARNET OR GRIT - PROFILE 1.5-2 MILS
   COATING: 3M BRAND SCOTCHKOTE 134
   THICKNESS: 10-15 DFT - COLOR GREEN
   EXTERIOR:
   SANDBLAST: SSPC-SP-10 NEAR WHITE METAL
   ABRASIVE: GARNET OR GRIT - PROFILE 1.5-2 MILS
   PRIMER COAT: CHEMICAL RESISTANT CATALYZED EPOXY COATING
   (ENGARD 450 H.S.)
   THICKNESS: 3-4 DFT - COLOR RED
   FINISH COAT: POLYESTER URETHANE FINISH (ENGARD 470 H.S.)
   THICKNESS: 3-4 DFT - COLOR SAFETY BLUE

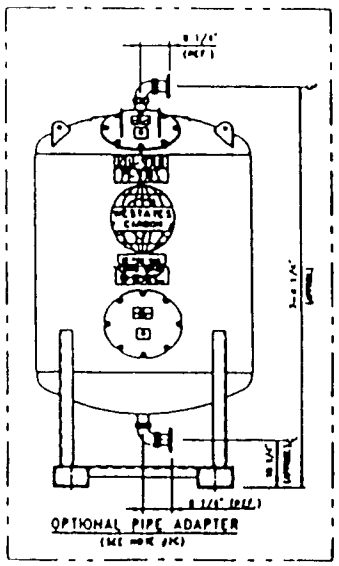
6. LIFTING REQUIREMENTS:
   A. USE 3 POINT CHAIN OR CABLE W/ 3/8" DIA. SHACKLE PINS
   DESIGNED FOR LIFTING 5200 LBS. MINIMUM RATING
   B. USE CHANNEL 3000 X 8.0 FT FOR LIFTING WITH FORKLIFT, 5200 LBS. MINIMUM RATING

EST. WEIGHTS:
1025 LBS - EMPTY VESSEL
2025 LBS. - WITH CARBON
5100 LBS - OPERATING





OPTIONAL PIPE ADAPTER
(SEE NOTE #1A & 1B)

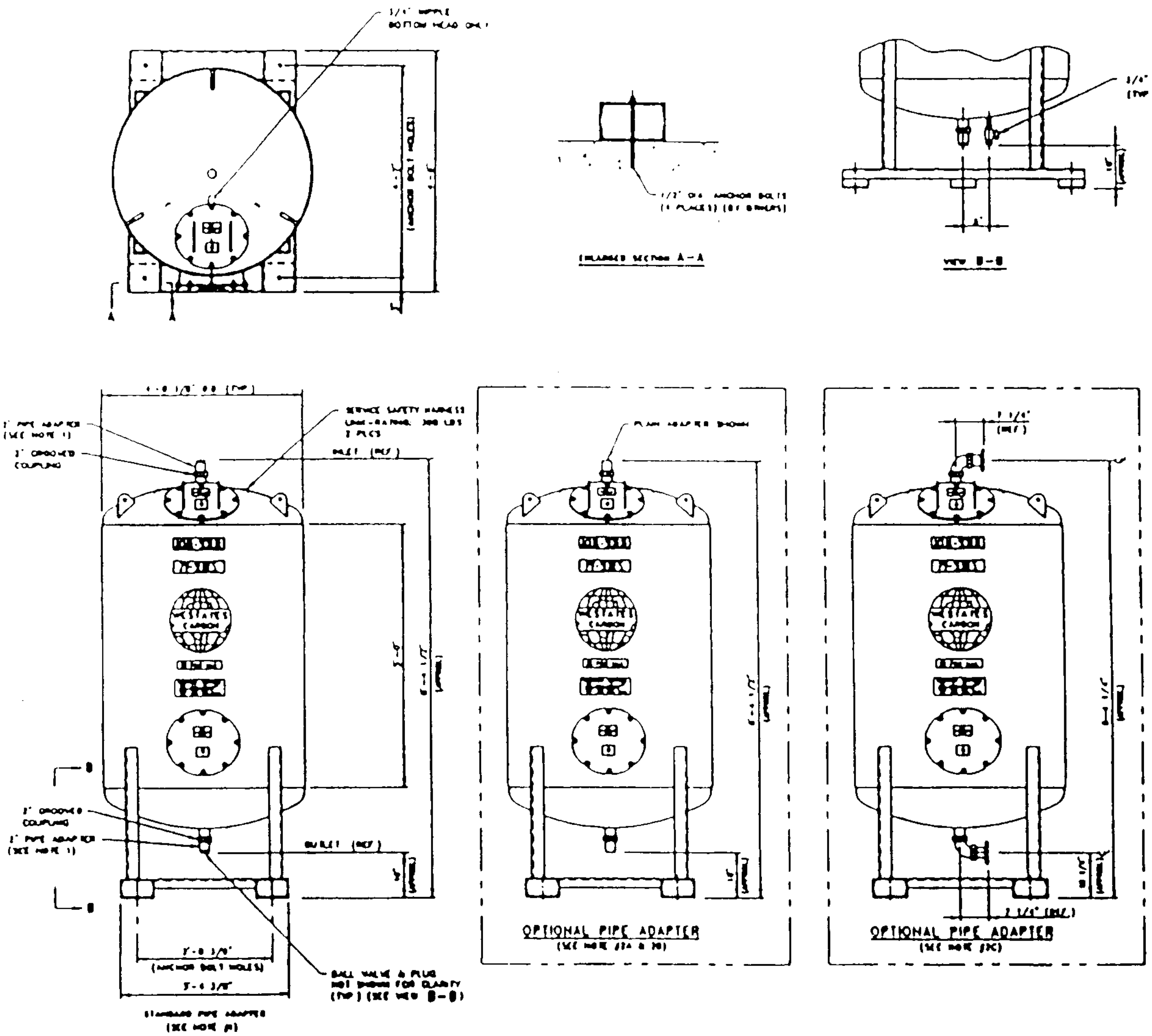


OPTIONAL PIPE ADAPTER
(SEE NOTE #1C)

WCI STANDARD	WESTATES CARBON, INC ENVIRONMENTAL PRODUCTS DIVISION LOS ANGELES, CA 90040				
	PV-35 AQUA SCRUB GENERAL ARRANGEMENT				
	SIZE C4	DWG # B-101325		REV 0	
	PART # A11035				

PATENTED

MAY 16 1989



NOTES:

1. STANDARD ADAPTER (SUPPLIED WITH VESSEL)
   PIPE, 3" SCH 40 GALVANIZED STEEL (GROOVED TO MNPT)
   PART# 330203 (DWG # B-101351)
2. ADAPTERS AVAILABLE AT EXTRA COST:
   A - PIPE, 3" PVC SCH 80 (GROOVED TO PLAIN) PART# 330204 (DWG # B-101353)
   B - PIPE, 3" PVC SCH 80 (GROOVED TO MNPT) PART# 330270 (DWG # B-101348)
   C - GROOVED TO 150# R.F. FLANGE SCH 40 STEEL 3" PIPE ADAPTER KIT PART #300011 (DWG # B-101361)
3. DESIGN DATA:
   48" DIAMETER PRESSURE VESSEL - 80 PSIG (MAX)
   @ 130°F - NOT ASME CODE STAMPED
   FOR WATER USE ONLY
   30 GPM
   1800 LBS. ACTIVATED CARBON
4. MATERIAL:
   HEADS - SA 370 OR 36
   SHELL - SA 36 GRADE C
   SKID - A 36
5. SURFACE PREPARATION:
   INTERIOR:
   SANDBLAST: SSPC-SP-5-85 WHITE METAL
   ABRASIVE: GARNET OR GRIT - PROFILE 1.5-2 MILS
   COATING: 3M BRAND SCOTCHKOTE 134
   THICKNESS: 10-15 DMFT - COLOR GREEN
   EXTERIOR:
   SANDBLAST: SSPC-SP-10 NEAR WHITE METAL
   ABRASIVE: GARNET OR GRIT - PROFILE 1.5-2 MILS
   PRIMER COAT: CHEMICAL RESISTANT CATALYZED EPOXY COATING (ENGARD 460 H.S.)
   THICKNESS: 3-4 DFMT - COLOR RED
   FINISH COAT: POLYESTER URETHANE FINISH (ENGARD 470 H.S.)
   THICKNESS: 3-4 DFMT - COLOR SAFETY BLUE
6. LIFTING REQUIREMENTS:
   A. USE 3 POINT CHAIN OR CABLE W/ 7/8" DIA. SHACKLE PINS DESIGNED FOR LIFTING 3200 LBS MINIMUM RATING
   B. USE CHANNEL SKID SLOTS FOR LIFTING WITH FORKLIFT, 3200 LBS MINIMUM RATING

EST. WEIGHTS:
1115 LBS - EMPTY VESSEL
2915 LBS - WITH CARBON
6260 LBS - OPERATING

WCI STANDARD

WESTATES CARBON, INC
ENVIRONMENTAL PRODUCTS DIVISION
LOS ANGELES, CA 90040

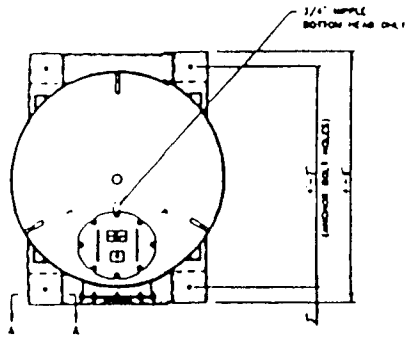
PV-50 AQUA SCRUB
GENERAL ARRANGEMENT

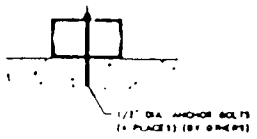
B-101328 REV 0

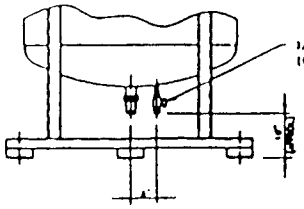
A11043

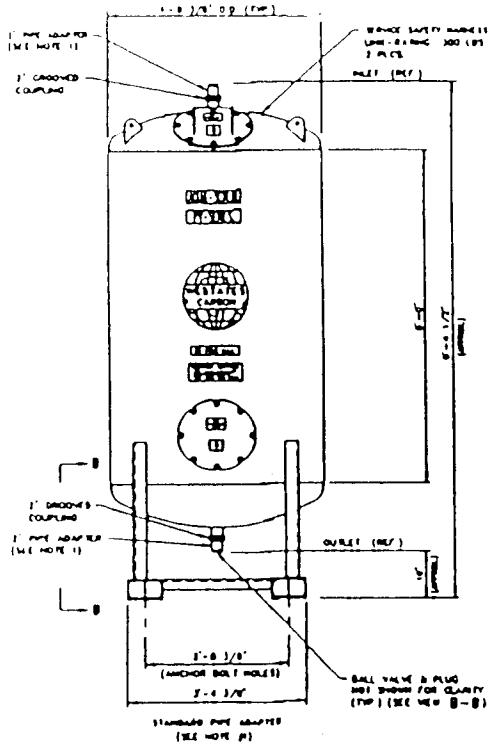
FOR INFORMATION ONLY

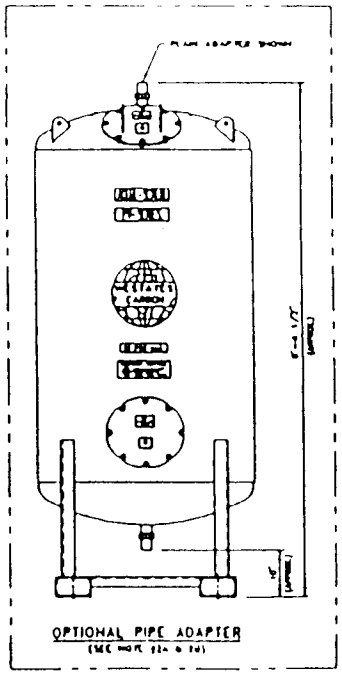
PRINTED
MAY 1 6 1994
WESTATES C[illegible]

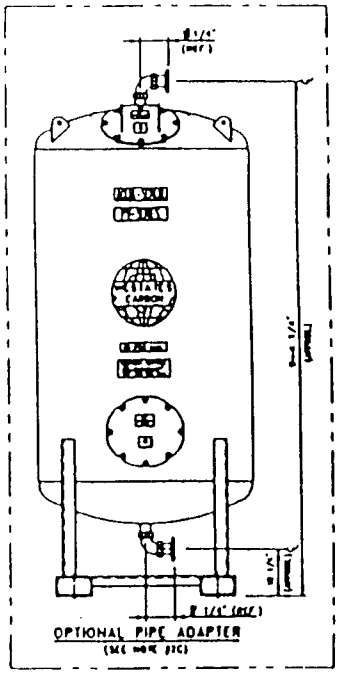












NOTES:

1. STANDARD ADAPTER (SUPPLIED WITH VESSEL)
   PIPE, 3" SCH 40 GALVANIZED STEEL (GROOVED TO MNPT)
   PART# 230285 (DWG # B-101352)

2. ADAPTERS AVAILABLE AT EXTRA COST:
   A - PIPE, 3" PVC SCH. 80 (GROOVED TO PLAIN) PART# 230287 (DWG # B-101354)
   B - PIPE, 3" PVC SCH. 80 (GROOVED TO MNPT) PART# 230279 (DWG # B-101349)
   C - GROOVED TO 150# R/F FLANGE SCH 40 STEEL, 3" PIPE ADAPTER KIT PART #280012 (DWG # B-101362)

3. DESIGN DATA:
   60" DIAMETER PRESSURE VESSEL - 50 PSIG (MAX)
   @ 150°F - NOT ASME CODE STAMPED
   FOR WATER USE ONLY
   35 GPM
   2000 LBS. ACTIVATED CARBON

4. MATERIAL:
   HEADS - SA 570 OR 36
   SHELL - SA 36 GRADE C
   SKID - A 36

5. SURFACE PREPARATION:
   INTERIOR:
   SANDBLAST: SSPC-SP-5-63 WHITE METAL
   ABRASIVE: GARNET OR GRIT - PROFILE: 1.5-2 MILS
   COATING: 3M BRAND SCOTCHKOTE 134
   THICKNESS: 10-15 DMFT - COLOR: GREEN

   EXTERIOR:
   SANDBLAST: SSPC-SP-10 NEAR WHITE METAL
   ABRASIVE: GARNET OR GRIT - PROFILE: 1.5-2 MILS
   PRIMER COAT: CHEMICAL RESISTANT CATALYZED EPOXY COATING (ENGARD 450 H.S.)
   THICKNESS: 3-4 DFMT - COLOR: RED
   FINISH COAT: POLYESTER URETHANE FINISH (ENGARD 426 H.S.)
   THICKNESS: 3-4 DFMT - COLOR: SAFETY BLUE

6. LIFTING RECOMMENDED:
   A. USE 3 POINT CHAIN OR CABLE W/ 7/8" DIA. SHACKLE PINS DESIGNED FOR LIFTING 5200 LBS. MINIMUM RATING
   B USE CHANNEL SKID SLOTS FOR LIFTING WITH FORKLIFT, 5200 LBS MINIMUM RATING

EST. WEIGHTS:
1190 LBS - EMPTY VESSEL
3190 LBS - WITH CARBON
7317 LBS - OPERATING

OPTIONAL PIPE ADAPTER
(SEE NOTE 2)(A & B)

OPTIONAL PIPE ADAPTER
(SEE NOTE 2)(C)

BCI STANDARD

WESTATES CARBON, INC
ENVIRONMENTAL PRODUCTS DIVISION
LOS ANGELES, CA 90044

PY-80 AQUA SCRUB
GENERAL ARRANGEMENT

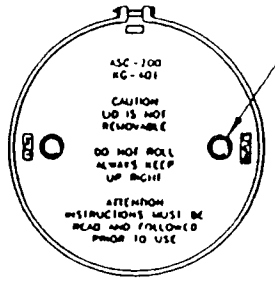
SIZE CA | SHEET B-101331 | REV 0

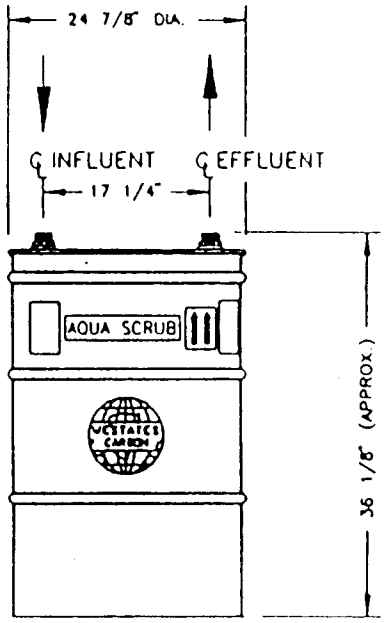
PART # A11055

FOR INFORMATION ONLY

MAY 16 1994

DWG. # B-ASC20-01





NOTES:

1. CARBON:
   KG-401 8x30 MESH: BITUMINOUS COAL GRANULAR
2. MATERIALS OF CONSTRUCTION:
   - VESSEL: ..... CARBON STEEL
   - EXTERNAL COATING: ..... HIGH GLOSS PAINT, WESTATES BLUE
   - INTERNAL COATING: ..... CURED EPOXY & PLASTIC LINER
   - INTERNAL DISTRIBUTION: ..... PVC
3. SPECIFICATIONS:
   - FLOW - GPM: (MAX.) 10
   - PRESSURE - PSIG: (MAX.) 12
   - TEMPERATURE - DEG F: (MAX.) 120
   - CARBON FILL VOLUME - CU FT: 7.0
   - CROSS SECTION - SQ FT: 2.8
   - SHIPPING WEIGHT - LBS: (APPROX.) 260
   - OPERATING WEIGHT - LBS: (APPROX.) 500

PRELIMINARY

FOR REVIEW ONLY

MAY 10 '93

WESTATES CARBON

REV	DATE	REVISION DESCRIPTION	DRAWN	CHK'D	ENG'R

CUSTOMER

LOCATION

Wheelabrator Clean Air Systems, Inc.
Westates Carbon Division
Los Angeles, CA 90040

TITLE

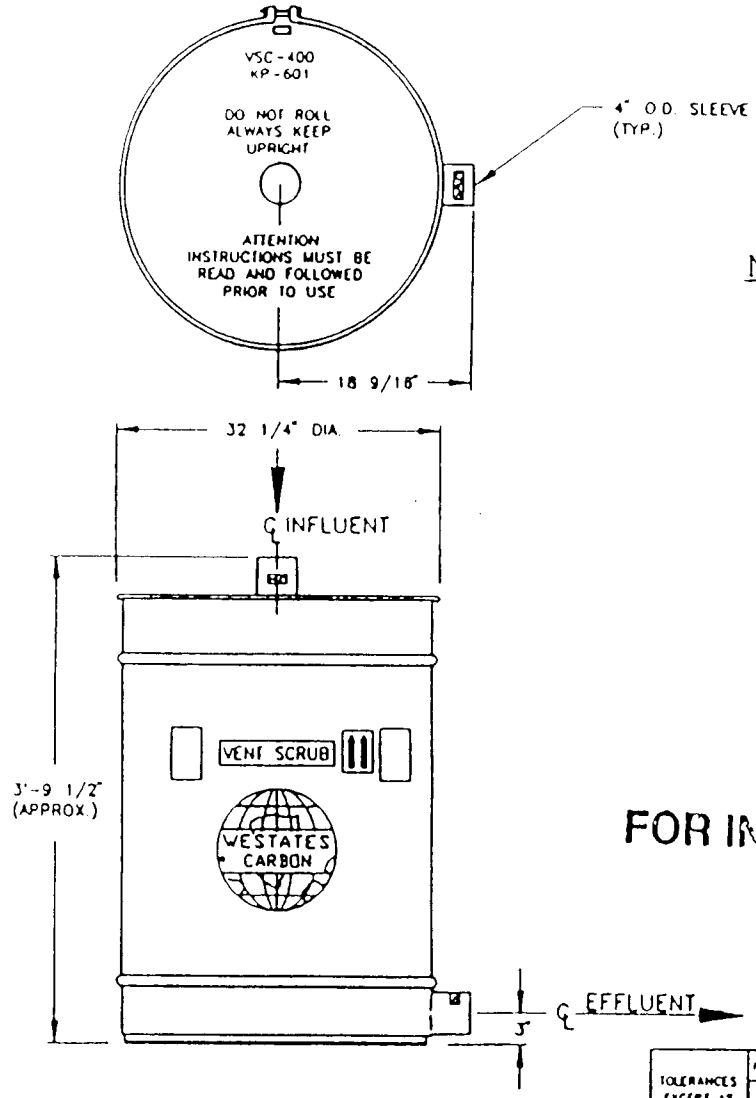
ASC 200-1-KG401 (AQUA SCRUB ADSORBER)
GENERAL ARRANGEMENT

TOLERANCES EXCEPT AS NOTED -	PLOT SCALE 1"=1'-0"
DEC ± 0.010 FRACT ± 1/2	DO NOT SCALE DRAWING

PROJECT No.	STANDARD	
DRAWN	D J B	08/23/93
CHK'D.		
ENG'R		

PART No. A11003-01 | DWG No B-ASC20-01 | REV 0

DWG. # B-VSC404-06



NOTES:

1. CARBON:
   KP-601 4mm: BITUMINOUS COAL EXTRUDED PELLETS
2. MATERIALS OF CONSTRUCTION:
   - VESSEL: ..... CARBON STEEL
   - EXTERNAL COATING: ..... BAKED ENAMEL, WHITE
   - INTERNAL COATING: ..... BAKED ENAMEL
   - INTERNAL DISTRIBUTION: ..... POLYPROPYLENE
3. SPECIFICATIONS:
   - FLOW * - CFM (MAX): 300
   - PRESSURE - PSIG (MAX): 5
   - TEMPERATURE - DEG F (MAX): 120
   - CARBON FILL VOLUME - CU FT: 10.5
   - CROSS SECTION - SQ FT: 4.9
   - SHIPPING WEIGHT - LBS: (APPROX.) 410

* NOTE: ACTUAL DESIGN SHOULD BE BASED ON SUPERFICIAL BED VELOCITY (SBV) AS REQUIRED FOR SPECIFIC CONTAMINANTS.

FOR INFORMATION ONLY

REV	DATE	REVISION DESCRIPTION	DRAWN	CHK'D	ENG'R

CUSTOMER

LOCATION

Wheelabrator Clean Air Systems, Inc.
Westates Carbon Division
Los Angeles, CA 90040

TITLE:
VSC 400-4-KP601 (VENT SCRUB ADSORBER)
GENERAL ARRANGEMENT

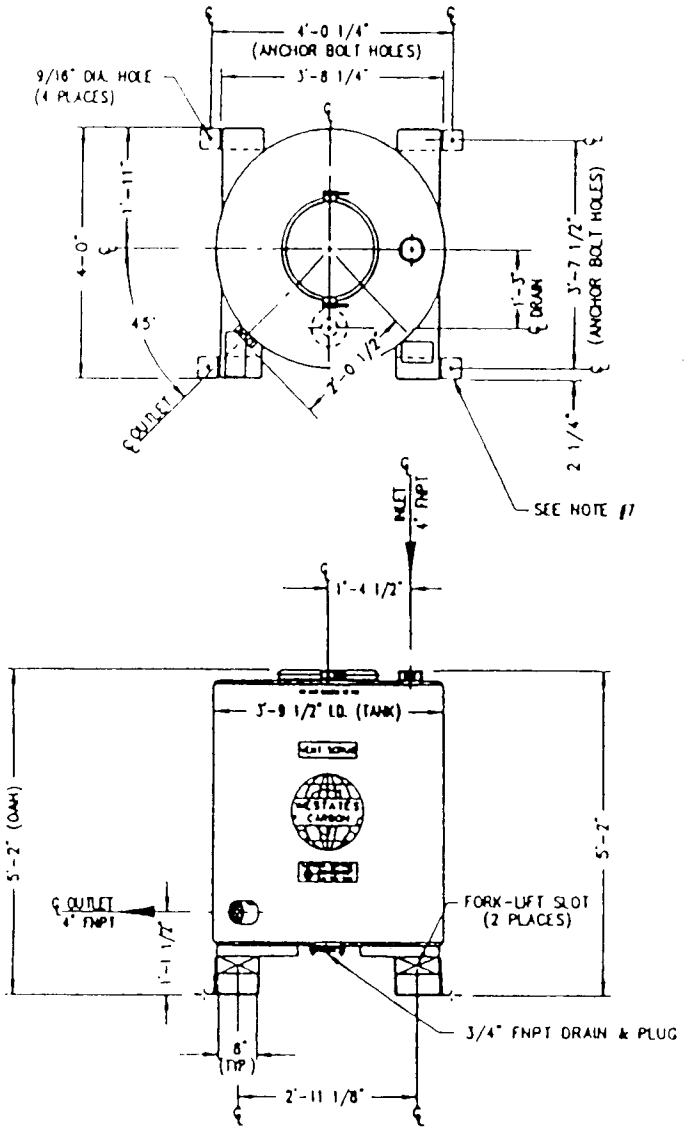
PROJECT No.	STANDARD	
DRAWN	JMB	08/19/93
CHK'D.		
ENG'R.		

PART No. A11105-06 | DWG No. B-VSC404-06 | REV 0

TOLERANCES EXCEPT AS NOTED -
DEC. ± 0.010
FRACT ± 1/2

PLOT SCALE: 1" = 1'-0"
DO NOT SCALE DRAWING

DWG # B-VS1204-06



FOR INFORMATION ONLY

NOTES:

1. CARBON:
   KP-601 4mm BITUMINOUS COAL EXTRUDED PELLETS.
2. DESIGN DATA:
   45 1/2" DIAMETER PRESSURE VESSEL - 12 PSIG (MAX)
   @ 120°F - NOT ASME CODE STAMPED
   FOR VAPOR USE ONLY, MAX. FLOW = 500 CFM
   35 CU. FT. ACTIVATED CARBON
   VACUUM = 6.0 PSIG
3. MATERIAL:
   HEADS - 7 GA. CARBON STEEL
   SHELL - 12 GA. CARBON STEEL
   SKID - CARBON STEEL
4. SURFACE PREPARATION:
   INTERIOR COATING: FUSION BONDED EPOXY
   EXTERIOR COATING: PRIMER: (2) PART EPOXY PRIMER
   FINISH: ALIPHATIC POLYURETHANE FINISH, WHITE
5. APPROXIMATE WEIGHTS:
   SHIPPING: ..... 1,515 LBS
   EMPTY VESSEL: ..... 640 LBS
   ACTIVATED CARBON: ..... 875 LBS
   MAX. UPSET (FLOODED): ..... 3,860 LBS
6. THIS VESSEL COMPLIES WITH D.O.T. SPEC. 56.
7. SHOWN WITH OPTIONAL SEIZMIC ZONE 4 HOLD-DOWN LUGS. (PART #A11098)

REV	DATE	REVISION DESCRIPTION	DRAWN	CHK'D	ENG'R

CUSTOMER:

LOCATION:

PROJECT No. STANDARD

DRAWN:	J.M.B	09/27/93
CHK'D:		
ENG'R:		

TOLERANCES EXCEPT AS NOTED - DEC. ± 0.010 FRACT. ± 1/4

PLOT SCALE: 1/2"=1'-0"

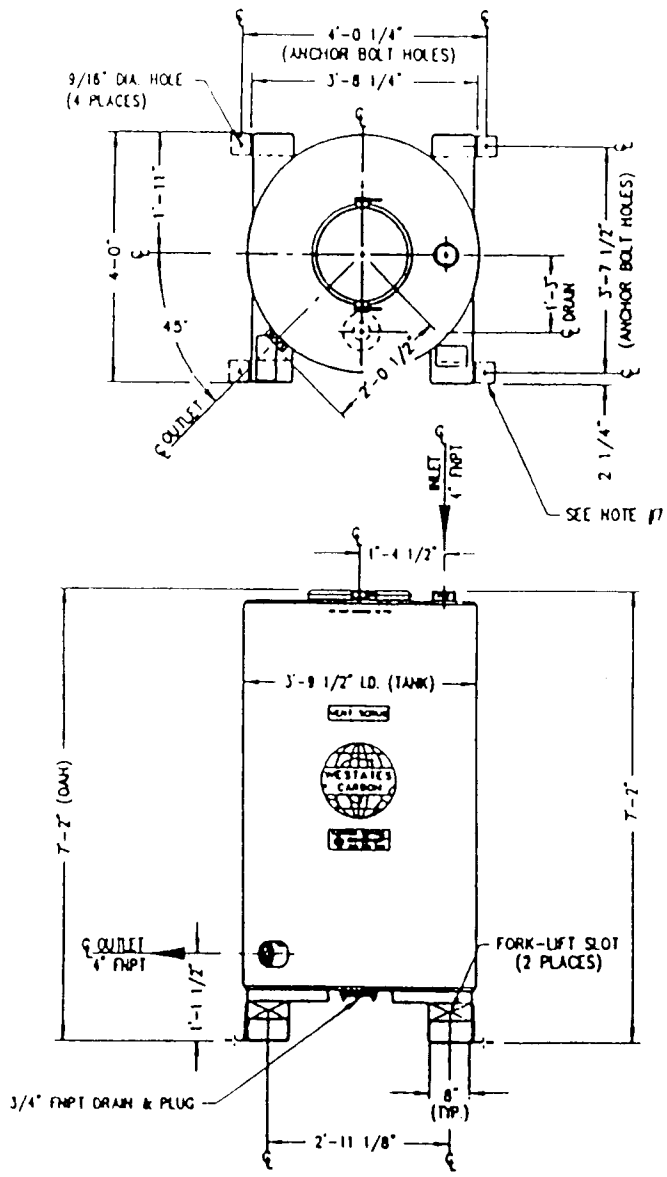
DO NOT SCALE DRAWING

Wheelabrator Clean Air Systems, Inc.
Westates Carbon Division
Los Angeles, CA 90040

TITLE:
VSC-1200-4-KP601 (VENT SCRUB ADSORBER)
GENERAL ARRANGEMENT

PART No. A11107-06 | DWG No. B-VS1204-06 | REV 0

DWG. # B-VS2004-06



NOTES:

1. CARBON:
   KP-601 4mm BITUMINOUS COAL EXTRUDED PELLETS.
2. DESIGN DATA:
   45 1/2" DIAMETER PRESSURE VESSEL - 12 PSIG (MAX)
   @ 120°F - NOT ASME CODE STAMPED
   FOR VAPOR USE ONLY, MAX. FLOW = 500 CFM
   57 CU. FT. ACTIVATED CARBON
   VACUUM = 6.0 PSIG
3. MATERIAL:
   HEADS - 7 GA. CARBON STEEL
   SHELL - 12 GA. CARBON STEEL
   SKID - CARBON STEEL
4. SURFACE PREPARATION:
   INTERIOR COATING: FUSION BONDED EPOXY
   EXTERIOR COATING: PRIMER: (2) PART EPOXY PRIMER
   FINISH: ALIPHATIC POLYURETHANE FINISH, WHITE
5. APPROXIMATE WEIGHTS:
   SHIPPING: ..... 2,165 LBS
   EMPTY VESSEL: ..... 740 LBS
   ACTIVATED CARBON: ..... 1,425 LBS
   MAX. UPSET (FLOODED): ..... 5,540 LBS
6. THIS VESSEL COMPLIES WITH D.O.T. SPEC. 56.
7. SHOWN WITH OPTIONAL SEIZMIC ZONE 4 HOLD-DOWN LUGS. (PART #A11098)

REV	DATE	REVISION DESCRIPTION	DRAWN	CHK'D	ENG'R

CUSTOMER:
LOCATION:

Wheelabrator Clean Air Systems, Inc.
Westates Carbon Division
Los Angeles, CA 90040

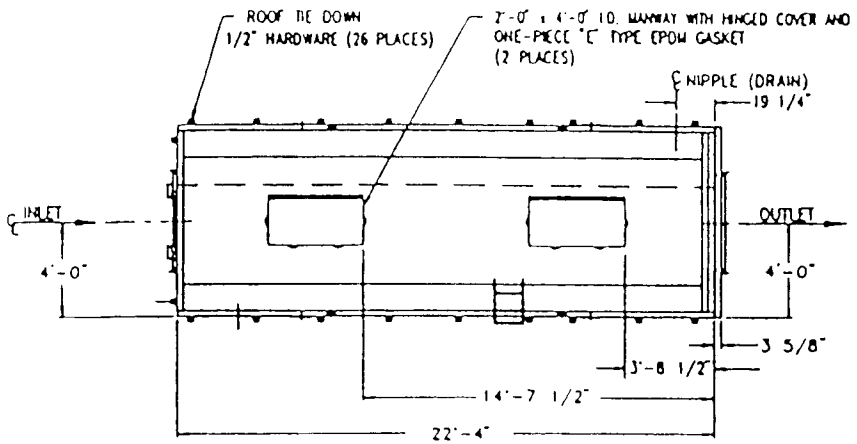
TITLE:
VSC-2000-4-KP601 (VENT SCRUB ADSORBER)
GENERAL ARRANGEMENT

TOLERANCES EXCEPT AS NOTED -	PLOT SCALE 1/2"=1'-0"
DEC. ± 0.010 FRACT. ± 1/4	DO NOT SCALE DRAWING

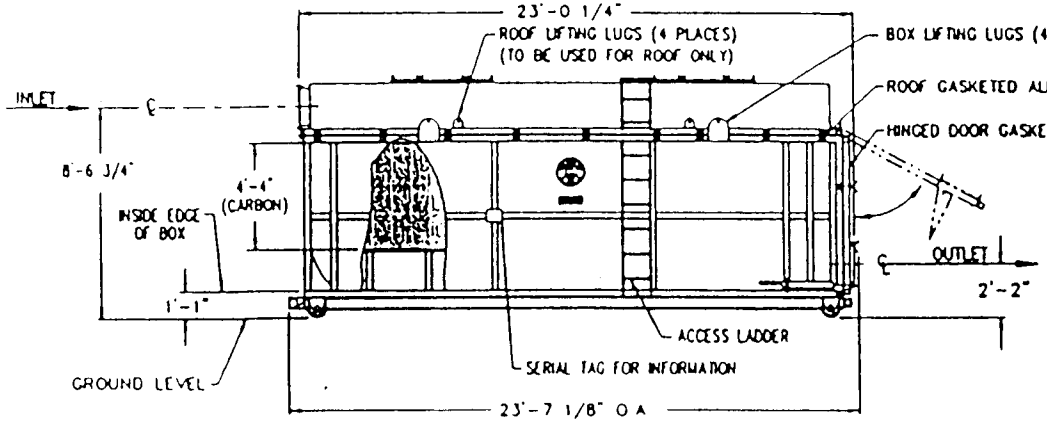
PROJECT No.	STANDARD		
DRAWN:	J.M.B.	09/27/93	
CHK'D:			
ENG'R:			

PART No. A11106-06 | DWG No. B-VS2004-06 | REV. 0

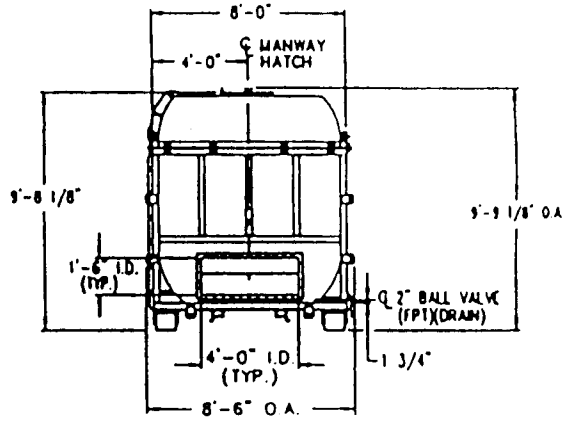
DWG. # B-A11134-18



PLAN VIEW



ELEVATION VIEW



NOTES:

1. CARBON:
   CC-601 4x8 MESH: COCONUT SHELL GRANULAR.
2. DESIGN DATA:
   14 INCHES W.G.
   FOR VAPOR USE ONLY, RATED FLOW 10,000 CFM.
3. MATERIAL: STRUCTURAL STEEL
   ASTM-A36: SHELL (12 GA.), ANGLE, CHANNEL, PLATE
   ASTM-A500: RECTANGULAR AND SQUARE TUBING
   ASTM-A53-B: PIPE NIPPLE (SCH. 40)
4. SURFACE PREPARATION:
   INTERIOR COATING: FUSION BONDED EPOXY
   EXTERIOR COATING: (A) PRIMER: (2) PART EPOXY PRIMER
   (B) FINISH: ALIPHATIC POLYURETHANE FINISH, BLUE
5. APPROXIMATE WEIGHTS:
   EMPTY: (NO CARBON)

ROOF:	1,400 LBS
BOX:	8,100 LBS
TOTAL:	9,500 LBS
CARBON:	20,000 LBS
SPENT:	30,500 LBS

REV	DATE	REVISION DESCRIPTION	DRAWN	CHK'D	ENG'R

W.C.A.S. STANDARD

Wheelabrator Clean Air Systems, Inc.
Westates Carbon Division
Los Angeles, CA 90040

TITLE:
RB-20 ROLL-OFF VAPOR UNIT
(715 CU. FT. CAPACITY)
GENERAL ARRANGEMENT

PROJECT No.	STANDARD	
DRAWN	D.J.B.	04/08/94
CHK'D		
ENG'R		

PART No. A11134-18 | DWG No. B-A11134-18 | REV 0

TOLERANCES EXCEPT AS NOTED - DEC ± 0.010 FRACT ± 1/2

PLOT SCALE: NONE
DO NOT SCALE DRAWING

FOR INFORMATION ONLY

RECEIVED
MAY 16

APPENDIX H

TABLE 5-1
CONDITION I EMISSIONS SUMMARY
DIOXIN/FURAN, HYDROGEN CHLORIDE AND CEMS

PARAMETER	UNITS	RUN 1	RUN 2	RUN 3	RUN 4	RCRA Performance Standard
Dioxin/Furans	ng/DSCM@7%O2	1.45	0.422	0.365	0.356	30
Hydrogen Chloride	lbs/hr	< 0.00168	< 0.00311	< 0.00253	< 0.00188	4
Carbon Monoxide*	ppm lbs/hr	1.6 0.010	1.4 0.010	4.4 0.033	4.7 0.028	100
Nitrogen Oxides	ppm lbs/hr	49.8 0.508	51.0 0.613	51.6 0.635	50.0 0.491	
Sulfur Dioxide	ppm lbs/hr	0.0 0.000	0.0 0.000	0.0 0.000	0.0 0.000	
Oxygen	%	5.9	6.0	5.0	6.3	
Carbon Dioxide	%	10.3	10.5	10.9	9.9	

* = 100 ppm hourly rolling average.

TABLE 6-1
CONDITION II EMISSIONS SUMMARY
POHC DREs AND CEMS

PARAMETER	UNITS	RUN 1	RUN 2	RUN 3	RCRA Performance Standard
Carbon Tetrachloride	% DRE	99.9995	99.9997	99.9998	99.99 %
Chlorobenzene	% DRE	99.9998	99.9998	99.9998	99.99 %
Carbon Monoxide *	ppm lbs/hr	0.506 0.003	0.888 0.005	2.05 0.010	100
Nitrogen Oxides	ppm lbs/hr	48.5 0.477	53.4 0.504	48.8 0.376	
Sulfur Dioxide	ppm lbs/hr	0.000 0.000	0.693 0.009	0.369 0.004	
Oxygen	%	6.2	5.4	5.3	
Carbon Dioxide	%	10.1	10.5	10.2	

DRE = Destruction and Removal Efficiency
* = 100 ppm hourly rolling average.

TABLE 7-1
CONDITION III EMISSIONS SUMMARY
PARTICULATE AND METALS

PARAMETER	UNITS	RUN 1	RUN 2	RUN 3	AVERAGE*
Filterable Particulate (1)	gr/DSCF @ 7 % O2	0.0284	0.0725	0.0259	0.0272
Antimony	gms/sec	1.34E-06	< 1.44E-06	8.70E-06	< 5.02E-06
Arsenic	gms/sec	2.27E-05	2.57E-05	8.03E-05	5.15E-05
Barium	gms/sec	1.66E-06	1.98E-06	4.46E-06	3.06E-06
Beryllium	gms/sec	< 2.49E-07	< 3.53E-07	5.33E-07	< 3.91E-07
Cadmium	gms/sec	3.07E-06	3.00E-06	5.36E-06	4.22E-06
Chromium	gms/sec	6.20E-06	5.32E-06	2.25E-05	1.44E-05
Lead	gms/sec	1.22E-04	1.15E-04	2.49E-04	1.85E-04
Mercury	gms/sec	5.27E-06	4.41E-06	6.63E-06	5.95E-06
Nickel	gms/sec	< 5.00E-06	< 7.11E-06	< 6.23E-06	< 5.61E-06
Selenium	gms/sec	2.94E-06	3.53E-06	4.33E-06	3.64E-06
Silver	gms/sec	1.31E-06	< 1.79E-06	< 1.57E-06	< 1.44E-06
Thallium	gms/sec	< 6.15E-07	< 8.74E-07	< 7.66E-07	< 6.91E-07

< = Indicates the value is the detection limit. Parameter not detected.
(1) = RCRA Allowable Limit = 0.08 gr/DSCF @ 7% O2. Draft Combustion Strategy Allowable Limit = 0.015 gr/DSCF @ 7% O2.
* = Average calculated using runs 1 and 3. Due to process upsets run 2 was not included in the average.

APPENDIX I

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
STORM WATER GENERAL PERMIT COVERAGE NOTICE

September 29, 1994

Dear Operator:

Your Notice of Intent (NOI) for the facility noted below has been processed by the U.S. Environmental Protection Agency. This facility is authorized to discharge storm water associated with industrial or construction activity under the terms and conditions imposed by EPA's NPDES storm water general permit issued for use in the state of Arizona. Your facility's NPDES Baseline Industrial storm water permit number is AZR00A70F.

EPA's storm water general permit requires certain storm water pollution prevention and control measures, possible monitoring and reporting, and annual inspections. Among the conditions and requirements of this permit, you must prepare and implement a pollution prevention plan (PPP) that is tailored to your industrial or construction site. Enclosed is a summary guidance document designed to assist you in the development and implementation of your PPP. The summary is organized according to the phases of the pollution prevention planning process. A set of worksheets and an example of a pollution prevention plan are provided for your assistance. As a facility authorized to discharge under this storm water general permit, all terms and conditions must be complied with to maintain coverage and avoid possible penalties.

FACILITY:
Westates Carbon Arizona Inc
2523 Mutahar St Po Box E
Parker, AZ 85344-
340750, 1141622,

OPERATOR:
Westates Carbon Arizona Inc
2523 Mutahar St Po Box E
Parker
AZ 85344-

If you need to obtain a copy of the permit, please call the EPA Office of Water Resource Center at (202)260-7786. If you have general questions concerning the storm water program, please call the EPA Region 09 contact: Eugene Bromley, (415)744-1906.

APPENDIX J

COLORADO RIVER INDIAN TRIBES
Colorado River Indian Reservation
ROUTE 1, BOX 23-B
TELEPHONE (602) 669-9211
PARKER, ARIZONA 85344

In reply, refer to: _____

FILE COPY

March 21, 1994

Mr. Monte McCue
Plant Manager - WCAI
P.O. Box E
Parker, Arizona 85344

Dear Mr. McCue:

At the Special Tribal Council meeting on February 18, 1994, the Tribes recognized that Phase II was known to be the intention of Westates Carbon - Arizona Inc., when preparing the Lease, Environmental Assessment and RCRA Part A Application. The Tribes support the development of the second furnace to the limits described in the RCRA Part A Application/Environmental Assessment.

Any expansion beyond the limits imposed by the RCRA Part A Application/Environmental Assessment shall be the subject of a revised or supplemental Environmental Assessment, and that such Assessment shall be reviewed by the Tribal Council, Environmental Officer and Bureau of Indian Affairs. A copy of the Resolution is attached for your ready reference.

Should you have any questions, please feel free to call me at 602-669-6800.

Sincerely,

Jonathan Speier

Jonathan Speier
Commercial Manager

FILE COPY

Resolution No 16-94

RESOLUTION

COLORADO RIVER TRIBAL COUNCIL

A Resolution to Support for Development of Westates Carbon-Arizona, Inc.'s Parker Reactivation Plant to the Limits Described in the RCRA Part A Application/Environmental Assessment

Be it resolved by the Tribal Council of the Colorado River Indian Tribes, in ~~regular~~ special meeting assembled on February 18, 1994

WHEREAS, the Colorado River Indian Tribes (Lessor) has entered into a Business Lease with Westates Carbon-Arizona, Inc. (Lessee) under Lease No. B-1122-CR and approved on March 4, 1991; and

WHEREAS, Westates Carbon-Arizona, Inc. completed an Environmental Assessment for a two furnace expanded facility dated March 1990 (Revised July 01, 1990), and such Environmental Assessment has been reviewed by the Tribal Council and the Environmental Officer; and

WHEREAS, Westates Carbon-Arizona, Inc. has filed a RCRA Part A Application with the United States Environmental Protection Agency describing a two furnace operation and requesting interim status for such operation; and

WHEREAS, Westates Carbon-Arizona, Inc. has completed construction of the first of the two furnaces and the complete infrastructure to support both furnaces, and has successfully operated the first furnace in accordance with the Lease since August 23, 1992; and

WHEREAS, Westates Carbon-Arizona, Inc. has been engaged in discussions with the United States Environmental Protection Agency regarding the granting of interim status for the second carbon reactivation furnace, and desires to construct such furnace:

The foregoing resolution was on February 18, 1994 duly approved by a vote of 5 for, 1 against and 0 abstaining, by the Tribal Council of the Colorado River Indian Tribes, pursuant to authority vested in it by Section 1.c. Article VI of the Constitution and By-laws of the Tribes, ratified by the Tribes on March 1, 1975 and approved by the Secretary of the Interior on May 29, 1975, pursuant to Section 16 of the Act of June 18, 1934, (48 Stat. 984). This resolution is effective as of the date of its adoption.

COLORADO RIVER TRIBAL COUNCIL

By

Chairman

Secretary

FILE COPY

NOW, THEREFORE, BE IT RESOLVED by the Tribal Council of the Colorado River Indian Tribes that the Tribes hereby recognize that Phase II was known to be the intention of Westates Carbon-Arizona, Inc. when preparing the lease, Environmental Assessment and RCRA Part A Application; and

BE IT FURTHER RESOLVED that the Tribes support the development of such second furnace to the limits described in the RCRA Part A Application; and

BE IT FURTHER RESOLVED that any expansion beyond the limits imposed by the RCRA Part A Application/Environmental Assessment shall be the subject of a revised or supplemental Environmental Assessment, and that such assessment shall be reviewed by the Tribal Council, Environmental Officer, and the Bureau of Indian Affairs; and

BE IT FINALLY RESOLVED that the Tribal Council Chairman and Secretary, or their designated representatives, are authorized to execute any and all documents necessary to implement this action.

APPENDIX K

№ 2528

COLORADO RIVER INDIAN TRIBES
Route 1, Box 23-B • Parker, Arizona 85344 • (602) 669-9211

BUILDING PERMIT APPLICATION

Applicant to complete numbered spaces only.

1 JOB LOCATION: 2523 Mutahar Street - CRIT Industrial Park
LEGAL DESCRIPTION: LOT NO. 13 & 14 | BLK | TRACT | ☐ SEE ATTACHED SHEET(S)

2 OWNER: Westates Carbon-Az, Inc. P.O. Box E Parker, Az 85344 (520) 669-5758
3 CONTRACTOR: Nelson Digging Service Parker, Az 85344
4 ARCHITECT OR ENGINEER: S.A.A.
5 ENGINEER: Lumar Engineering
6 LENDER: None
7 USE OF BUILDING: Building 1-Storage Building 2-Office Building 3-Product Packaging

8 Class of Work: ☐ NEW ☐ ADDITION ☐ ALTERATION ☐ REPAIR ☐ MOVE ☐ REMOVE

9 Describe Work: Phase I-Install 4800ft^2, pre-engineered building on concrete slab.
Phase II-Install (1) 4000 ft^2 and (1) 7200 ft^2 building on concrete.

10 Change of use from

Change of use to

WESTATES CARBON-ARIZONA, INC
CRIT Industrial Park - 2523 Mutahar Street
CRIT

11 Valuation of work: $ 400,000

SPECIAL CONDITIONS: Plumbing and electrical permit cost are included in the Building Permit cost.

APPLICATION ACCEPTED BY	PLANS CHECKED BY	APPROVED FOR ISSUANCE BY
		CRIT 7/20/95

PLAN CHECK FEE | PERMIT FEE

TYPE OF CONST.	OCCUPANCY GROUP	DIVISION
SIZE OF BLDG. (Total) S.F.	NO. OF STORIES	Max. OCC. LOAD
FIRE ZONE	USE ZONE	FIRE SPRINKLERS REQUIRED ☐ YES ☐ NO
NO. OF DWELLING UNITS	OWNER	CONTRACTOR

SPECIAL APPROVALS	REQUIRED	RECEIVED	NOT REQUIRED
ZONING			
HEALTH DEPT.			
FIRE DEPT.			
SOIL REPORT			
OTHER (Specify)			

NOTICE

SEPARATE PERMITS ARE REQUIRED FOR ELECTRICAL, PLUMBING, HEATING, VENTILATING OR AIR CONDITIONING.

THIS PERMIT BECOMES NULL AND VOID IF WORK OR CONSTRUCTION AUTHORIZED IS NOT COMMENCED WITHIN 180 DAYS, OR IF CONSTRUCTION OR WORK IS SUSPENDED OR ABANDONED FOR A PERIOD OF 180 DAYS AT ANY TIME AFTER WORK IS COMMENCED.

I HEREBY CERTIFY THAT I HAVE READ AND EXAMINED THIS APPLICATION AND KNOW THE SAME TO BE TRUE AND CORRECT. ALL PROVISIONS OF LAWS AND ORDINANCES GOVERNING THIS TYPE OF WORK WILL BE COMPLIED WITH WHETHER SPECIFIED HEREIN OR NOT. THE GRANTING OF A PERMIT DOES NOT PRESUME TO GIVE AUTHORITY TO VIOLATE OR CANCEL THE PROVISIONS OF ANY OTHER STATE OR LOCAL LAW REGULATING CONSTRUCTION OR THE PERFORMANCE OF CONSTRUCTION.

SIGNATURE OF OWNER OR AUTHORIZED AGENT: [signature] DATE: 7/20/95
SIGNATURE OF OWNER OR FIRM'S OFFICER: DATE:

WHEN PROPERLY VALIDATED (IN THIS SPACE) THIS IS YOUR PERMIT

PLAN CHECK VALIDATION CK. M.O. CASH | PERMIT VALIDATION PAID 7/20/95 M.O. CASH

WHITE - INSPECTOR CANARY - ACCOUNTING PINK - APPLICANT #127659

APPENDIX L

EEI ENGINEERING ENTERPRISES, INC.

WATER RESOURCES SPECIALISTS

1225 West Main Norman, Oklahoma 73069 Phone (405) 329-8300 Telex 333668 (ENG ENT INC) FAX: (405) 366-8722

February 16, 1990

Ms. Shereen Lerner
State Historical Preservation Officer
State Parks Department
800 W. Washington, Suite 415
Phoenix, AZ 85007

Dear Ms. Lerner:

Engineering Enterprises, Inc. (EEI) has been retained to complete an environmental assessment for the Colorado River Indian Tribes (BIA) on a site near Parker, Arizona. The 11-acre site is located in the SE-1/4 of Section 7, T9N, R19W (see enclosed map) otherwise known as lots 13 and 14 of C.R.I.T. Industrial Park. Westate Carbon will put in a carbon recycling plant at the site location.

The local C.R.I.T. Museum completed an Archeologic Walk-Over on the site on August 8, 1989 (see enclosed copy). A written historical and archeological evaluation of the site is required for our Environmental Assessment. Your timely assistance in this matter will be greatly appreciated.

If you have any questions, please call me at 405/329-8300.

Yours truly,

William E. Curry

William E. Curry
Staff Hydrogeologist
C.P.G. 6532

WEC:ns

Enclosures

RECEIVED

89-8-1

RECEIVED: 08-03-89
REVIEWED: 08-08-89

C.R.I.T. MUSEUM
ARCHAEOLOGIC WALK-OVER PRE-APP. FORM

PROPOSAL: Westates Carbon

TWP: 9N R: 20W SEC: _

S/W 1/4 OF S/E 1/4

LOCATION: Industrial Park

SUBMITTED BY: Weldon B. Johnson, Sr., Asst. Mus. Dir./Cult.Arch.
THROUGH: Curtiss Martin, Sr., Museum Director

PREVIOUS DESIGNATIONS: A records search of the C.R.I.T. Museum's archaeologic files revealed no sites previously recorded at this location.

SITE DESCRIPTION: Site consists of compacted blow sand with creosote, sage and some cholla cactus, ORV impacts also occur at this location.

WALK-OVERS RESULTS: The archaeologic walk-over revealed no sites identified.

RECOMMENDATIONS/REMARKS: Due to the absence of cultural material and no sites previously recorded, I recommend waiver of the Cultural Resource portion within the C.R.I.T. L.U.O. 85-2 as amended.

ATTACHMENTS:

ARIZONA STATE PARKS

800 W. WASHINGTON
SUITE 415
PHOENIX, ARIZONA 85007
TELEPHONE 602-542-4174

November 29, 1990

Wilson Barber, Area Director
DOI Bureau of Indian Affairs
Phoenix Area Office
P.O. Box 10
Phoenix, AZ 85001

ATTN: C. Randall Morrison

RE: Colorado River Indian Reservation, W [illegible] Regeneration Lease, DOI-BIA/PAO

Dear Mr. Barber:

Thank you for notifying us about the above project and sending us a copy of the cultural resources documentation prepared by Weldon Johnson from the CRIT Museum. I have reviewed the documentation that you submitted and have the following comments pursuant to 36 CFR Part 800:

1. The documentation that was submitted is not consistent with the Secretary of the Interior's standards for archaeological inventories and we request that future surveys be more consistent with these standards and presented to us in a format per our memorandum of February 5, 1988 to all Federal agencies and consulting archaeologists.

2. Regardless, we have no reasons to doubt Mr. Johnson's findings and note that he did not locate any cultural material.

3. Therefore, we concur with the agency that this project should have no effect on any National Register or eligible properties.

4. One conditional comment is that should archaeological remains be encountered during project ground disturbing activities, work should cease in the area of the discovery and this office be notified immediately, pursuant to 36 CFR 800.11.

We appreciate your continued cooperation with this office in complying with the historic preservation requirements for federally assisted undertakings. If you have any questions, please contact me.

Sincerely,

Robert E. Gasser
Compliance Coordinator

for Shereen Lerner, Ph.D.
State Historic Preservation Officer

APPENDIX M

STENOGRAPHIC RECORD OF OCTOBER 4, 1994
PUBLIC MEETING

WESTATES CARBON-ARIZONA, INCORPORATED

PUBLIC COMMENTING MEETING

TAKEN ON TUESDAY, OCTOBER 4, 1994

TAKEN AT JOHNSON O'MALLEY J.T.P.A. BUILDING

PARKER, ARIZONA

AT 7:02 P.M.

REPORTED BY: DAWN M. MAXFIELD NEE PAULSEN, RPR,CA CSR 10491

APPEARANCES:

MONTE MC CUE:	WESTERN CARBON-ARIZONA, INC., PLANT MANAGER
MIKE TROUP:	PROJECT MANAGER
MATT KILLEEN:	MANAGER OF ENVIRONMENTAL PERMITTING
BILL CARLSON:	VICE PRESIDENT OF THE WESTERN REGION OF WHEELABRATOR

SIGN-IN SHEET ATTACHED

MR. MC CUE: IF WE COULD START. IT IS 7:02 P.M ON OCTOBER 4TH, 1994. WE ARE AT THE JOHNSON O'MALLEY J.T.P.A. BUILDING ON THE COLORADO RIVER INDIAN TRIBES, AND WE ARE HERE FOR A PUBLIC COMMENTING MEETING FOR WESTATES CARBON-ARIZONA, INCORPORATED.

WE HAVE A LOT OF WESTATES AND WHEELABRATOR PEOPLE HERE TONIGHT. I'D LIKE TO INTRODUCE THREE PEOPLE IF I COULD, BILL CARLSON, WHO IS VICE PRESIDENT OF THE WESTERN REGION OF WHEELABRATOR; MATT KILLEEN, WHO IS MANAGER OF ENVIRONMENTAL PERMITTING; AND MIKE TROUP, WHO IS THE PROJECT MANAGER FOR THE EXPANSION. MY NAME IS MONTE MC CUE AND I'M THE PLANT MANAGER.

THE PURPOSE OF THIS MEETING IS TO PROVIDE A DESCRIPTION OF THE ACTIVITIES AT THE SITE AND TO GATHER COMMENTS AND QUESTIONS FROM MEMBERS OF THE LOCAL COMMUNITY PRIOR TO SUBMITTING THE PART B APPLICATION TO REGION 9 OF THE ENVIRONMENTAL PROTECTION AGENCY WHICH REGULATES HAZARDOUS WASTE MANAGEMENT ACTIVITIES AT THIS SITE.

WESTATES CARBON IS ON ITS OWN ACCORD COMPLYING WITH A PROPOSED RULE CHANGE WHEREBY THE APPLICANT MUST HOLD A PUBLIC MEETING PRIOR TO SUBMITTING A RESOURCE CONSERVATION AND RECOVERY ACT, OTHERWISE KNOWN AS R.C.R.A., PART B APPLICATION. THIS IS THE FIRST OPPORTUNITY FOR PUBLIC PARTICIPATION IN THE PERMITTING PROCESS. AS THIS PROCESS PROCEEDS, THERE WILL BE OTHER PUBLIC NOTICES AND

OPPORTUNITIES FOR PUBLIC PARTICIPATION.

WHILE WE ARE CONDUCTING THIS MEETING AS PART OF THE PERMITTING PROCESS, WE WILL CONTINUE TO BE AVAILABLE TO ANSWER QUESTIONS FROM THE PUBLIC. I WOULD ALSO LIKE TO MENTION THAT IN THE PUBLIC NOTICE WE OFFERED TOURS OF THE FACILITY. THIS SHOULD NOT BE LOOKED UPON TO BE RESTRICTED ONLY TO THIS OCCASION. THE STAFF AND I ARE ALWAYS AVAILABLE, AND IF YOU WOULD GIVE US A CALL AT THE FACILITY, WE CAN SET UP A TIME TO TOUR THE PLANT.

THE PROPOSED RULES REQUIRE THAT WE PRODUCE A RECORD OF THE MEETING ALONG WITH A LIST OF ATTENDEES AND THEIR ADDRESSES. TO ACCOMPLISH THIS, WE HAVE A STENOGRAPHER WHO WILL RECORD THE DISCUSSION AT THE MEETING. WE HAVE ALSO PROVIDED SIGN-IN SHEETS AT THE BACK OF THE ROOM, AND WE ENCOURAGE EVERYONE PRESENT TO PLEASE SIGN IN. THE STENOGRAPHIC RECORD AND COPIES OF THE SIGN-IN SHEETS WILL BE SUBMITTED TO E.P.A. WITH THE PERMIT APPLICATION.

AT THIS TIME I WOULD JUST LIKE TO TAKE A MOMENT AND THANK PETER NIMKOFF OF THE COLORADO INDIAN TRIBES AND CONNER BYESTEWA OF THE COLORADO RIVER INDIAN TRIBES FOR THEIR HELP AND COOPERATION IN SETTING THIS MEETING UP.

THE FIRST QUESTION--THE FIRST QUESTION EVERYBODY ASKS US IS "WHAT IS ACTIVATED CARBON?" THE PRIMARY RAW MATERIAL FOR ACTIVATED CARBON IS ANY ORGANIC MATERIAL THAT HAS A HIGH CARBON CONTENT SUCH AS COAL, WOOD, OR COCONUT

SHELLS.

GRANULAR ACTIVATED CARBON IS MOST COMMONLY PRODUCED BY GRINDING THE RAW MATERIAL, ADDING A SUITABLE BINDER, RE-COMPACTING, AND CRUSHING TO THE APPROPRIATE SIZE. THE CARBON BASED MATERIAL IS CONVERTED TO ACTIVATED CARBON BY THERMAL DECOMPOSITION IN A FURNACE USING A CONTROLLED ATMOSPHERE AND HEAT.

THE RESULTANT PRODUCT HAS AN INCREDIBLY LARGE SURFACE AREA PER UNIT VOLUME AND A NETWORK OF SUBMICROSCOPIC PORES--EXCUSE ME--WHICH--WHERE ADSORPTION OF ORGANIC CONTAMINANTS TAKE PLACE. IT IS INTERESTING TO NOTE THAT ONE POUND OF CARBON OR ROUGHLY ONE QUART PROVIDES A SURFACE AREA EQUIVALENT TO SIX FOOTBALL FIELDS.

OVER THE COURSE OF THE NEXT 25 TO 30 MINUTES I'D LIKE TO GIVE YOU AN OVERVIEW OF THE FACILITY, INCLUDING A DISCUSSION OF THE HAZARDOUS WASTE ACTIVITIES THAT OCCUR THERE. I WILL DISCUSS THE FOLLOWING ISSUES:

NUMBER ONE IS THE TYPE OF FACILITY WHICH EXISTS AND THE EXPANSION PLANS;

NUMBER TWO, LOCATION OF THE WESTATES FACILITY IN RELATION TO THE SURROUNDING COMMUNITIES;

NUMBER 3, THE GENERAL PROCESS INVOLVED INCLUDING A DISCUSSION OF THE HAZARDOUS WASTE MANAGEMENT ACTIVITIES AT THE FACILITY;

NUMBER 4, THE TYPES OF WASTE GENERATED AND

MANAGED;

AND FINALLY NUMBER FIVE, THE WASTE MINIMIZATION OF POLLUTION CONTROL MEASURES THAT--EXCUSE ME--THAT ARE IMPLEMENTED AT THE FACILITY.

AT THE END OF THE PRESENTATION I WOULD ENCOURAGE YOU TO PROVIDE COMMENTS OR FEEL FREE TO ASK QUESTIONS AT ANY TIME DURING THE REMAINDER OF THIS DISCUSSION.

SOME FACILITY BACKGROUND: WESTATES CARBON IS A WHOLLY-OWNED SUBSIDIARY OF WHEELABRATOR CLEAN AIR SYSTEMS. WHEELABRATOR ENVIRONMENTAL SYSTEMS, INCORPORATED STAFFS AND OPERATES THE PLANT. BOTH OF THESE COMPANIES ARE SUBSIDIARIES OF WHEELABRATOR TECHNOLOGIES, INCORPORATED WHICH IS A PUBLICLY-OWNED COMPANY.

THE CONSTRUCTION OF THE FACILITY WAS COMPLETED IN AUGUST OF 1992. OPERATIONS BEGAN ON AUGUST 23RD, 1992. THE FIRST SHIPMENT OF HAZARDOUS SPENT CARBON WAS RECEIVED ON SEPTEMBER 17TH, 1992.

THE PURPOSE OF THE FACILITY IS TO REACTIVATE OR RECYCLE SPENT CARBON OR USED ACTIVATED CARBON AND RETURN THE PRODUCT TO CUSTOMERS FOR REUSE. THE E.P.A. HAS DETERMINED THAT RECYCLING IS MORE DESIRABLE THAN EITHER LAND DISPOSAL OR INCINERATION.

THE SOLE FUNCTION OF THE WESTATES CARBON RECYCLING FACILITY IS TO REMOVE THOSE CONTAMINANTS FROM THE CARBON AND DESTROY THEM MAKING THE CARBON REUSABLE. THIS

IS ACCOMPLISHED BY HEATING THE CARBON TO TEMPERATURES IN EXCESS OF 1650 DEGREES THEREBY VOLATIZING OR DRIVING OFF THE ADSORBED ORGANICS AND DESTROYING THEM EITHER IN THE FURNACE OR IN THE AFTERBURNER. STEAM IS INJECTED IN THE BOTTOM HEARTH OF THE FURNACE TO OXIDIZE ANY CARBONACEOUS MATERIAL THAT MAY BE LEFT BEHIND DURING THE VOLATILIZATION PROCESS.

SINCE THE PLANT IS LOCATED ON TRIBAL LAND, IT IS DIRECTLY REGULATED UNDER E.P.A. REGION 9 WHICH WORKS IN UNISON WITH THE COLORADO RIVER INDIAN TRIBES AND THEIR ENVIRONMENTAL OFFICE.

THE PLANT, WHICH IS CERTIFIED BY THE ENVIRONMENTAL PROTECTION AGENCY TO TREAT SPENT CARBON GENERATED AT SUPERFUND SITES, IS SUBJECT TO AN E.P.A. INSPECTION AT LEAST EVERY SIX MONTHS ACCOMPANIED BY THE C.R.I.T. ENVIRONMENTAL OFFICER. THE C.R.I.T. ENVIRONMENTAL OFFICER ALSO VISITS THE FACILITY ON A PERIODIC BASIS.

THE FACILITY LOCATION-- THE FACILITY IS LOCATED IN THAT AREA, PARKER AND THE AIRPORT, THE AIRPORT BEING RIGHT HERE. IT'S RIGHT OFF MUTAHAR STREET WHICH YOU CAN SEE RIGHT HERE, AND IT'S LOCATED ON THE COLORADO RIVER INDIAN TRIBES INDUSTRIAL PARK.

WE ARE CURRENTLY LEASING TEN ACRES WHICH IS INSIDE THE DOTTED LINE HERE--EXCUSE ME--TWO ACRES WHICH IS ACTUALLY THE FACILITY THAT WE HAVE RIGHT NOW. LET ME SAY

THAT AGAIN. THE FACILITY WE HAVE NOW IS ACTUALLY TWO ACRES WHICH IS INSIDE THE FENCED BOUNDARY. THE WAREHOUSE, BEING THIS AREA, AND THE OUTSIDE EQUIPMENT AREA HERE.

WITH THE EXPANSION WILL COME A PRODUCT PACKAGING BUILDING WHICH WILL BE LOCATED IN THIS AREA AND A NEW OFFICE BUILDING WHICH WILL BE LOCATED IN THAT AREA.

THE EXPANSION DOES NOT PROPOSE TO INCREASE THE ACREAGE LEASED, BUT WE WOULD USE SOME OF THE UNDEVELOPED AREA, THAT BEING THE UNDEVELOPED AREA, FOR A PRODUCT WAREHOUSE AND OFFICE BUILDING.

SPENT CARBON IS RECEIVED IN EITHER CONTAINERS SUCH AS DRUMS, SUPERSACKS, OR AS BULK LOADS IN TANK TRUCKS. THE CONTAINERS AND TRUCKS MUST MEETS U.S. DEPARTMENT OF TRANSPORTATION REQUIREMENTS. ALL LOADS ARE INSPECTED BEFORE THEY ARE ACCEPTED FOR PROCESSING AT THE FACILITY.

AFTER INSPECTION AND ACCEPTANCE AT THE FACILITY, THE CONTAINERIZED SPENT CARBON IS STORED AT A R.C.R.A.-REGULATED CONTAINER STORAGE AREA IN THE CONTAINERS IN WHICH IT WAS RECEIVED.

AT THE TIME OF THE PROCESSING, THE CONTAINERIZED SPENT CARBON IS PLACED INTO ONE OF TWO HOPPERS, MIXED WITH WATER TO FORM A WATER/CARBON SLURRY, AND TRANSFERRED INTO ONE OF FOUR SPENT CARBON STORAGE TANKS.

AFTER INSPECTION AND ACCEPTANCE, BULK SHIPMENTS ARE PUMPED AS A WATER/CARBON SLURRY FROM THE TRANSPORT

VEHICLE INTO ONE OF THE FOUR SPENT CARBON STORAGE TANKS.

THE SPENT CARBON STORAGE TANKS-- FROM THE SPENT CARBON STORAGE TANKS THE WATER/CARBON SLURRY IS PUMPED INTO ONE OF THE TWO REACTIVATION UNITS.

PRIOR TO INTRODUCTION INTO ONE OF THE TWO REACTIVATION UNITS, THE WATER/CARBON SLURRY IS DEWATERED USING A--BY USE OF INCLINED DEWATER SCREWS. THE DEWATERED CARBON IS THEN FED TO ONE OF THE TWO REACTIVATION UNITS.

THE WATER GENERATED IN THE DEWATERING STEP IS RETURNED TO ONE OF TWO RECYCLE WATER TANKS WHERE IT WILL BE USED IN THE CARBON TRANSPORT SYSTEM.

ONCE THE SPENT CARBON IS INTRODUCED INTO THE REACTIVATION UNITS, IT IS HEATED TO REMOVE MOISTURE, DRIVE OFF CONTAMINANTS, AND STEAM IS ADDED TO REACTIVATE THE CARBON.

HERE WE SEE A PICTURE OF A--IT'S A HERRESHOFF REACTIVATION FURNACE. THE PICTURE YOU SEE HERE HAS FOUR, HEARTHS--EXCUSE ME--FIVE HEARTHS, ONE, TWO, THREE, FOUR, FIVE.

THE CARBON-- THE DEWATERED SPENT CARBON IS FED IN THE TOP, DROPS DOWN TO THE BOTTOM--TOP PART, EXCUSE ME, AND IS FED BY ARMS ATTACHED TO THIS SHAFT THROUGH THE FURNACE, AND FINALLY DOWN TO THE BOTTOM AND OUT AS REACTIVATED PRODUCT.

CURRENTLY THE PACKAGING AND SHIPPING OF THE

REACTIVATED PRODUCT IS PERFORMED ON SITE. PLANS IN THE PART B APPLICATION CALL FOR MOVING THESE OPERATIONS TO A DEDICATED FACILITY ADJACENT TO THE REACTIVATION FACILITY.

MANY OF THE CONTAMINANTS DRIVEN OFF OF THE SPENT CARBON IN THE REACTIVATION UNITS ARE THERMALLY DESTROYED IN THE HIGH-TEMPERATURE ENVIRONMENT OF THE REACTIVATION UNITS.

IN ORDER TO ENSURE ADEQUATE DESTRUCTION AND REMOVAL OF ANY REMAINING CONTAMINANTS, THE REACTIVATION UNITS HAVE BEEN EQUIPPED WITH EXTERNAL AFTERBURNERS.

THE EXTERNAL AFTERBURNERS ARE PROVIDED TO DESTROY ANY ORGANIC COMPOUNDS REMAINING IN THE OFF-GAS SYSTEM. EACH REACTIVATION UNIT IS ALSO EQUIPPED WITH ADDITIONAL AIR POLLUTION CONTROL EQUIPMENT.

VENTURI SCRUBBERS ARE PROVIDED FOR PARTICULATE MATTER CONTROL AND PACKED-BED SCRUBBERS ARE PROVIDED FOR ACID GAS CONTROL. A WET ELECTROSTATIC PRECIPITATOR IS ALSO PROVIDED ON R.F.-2 FOR ADDITIONAL PARTICULATE MATTER CONTROL.

GOING BACK FOR A SECOND, THERE'S A TWO-STEP PERMITTING PROCESS. THE PERMITTING PROCESS FOR THIS TYPE OF FACILITY INVOLVES TWO STEPS.

THE FIRST STEP IS PART A WHICH IS INTERIM STATUS. THIS STEP HAS BEEN COMPLETED BY THE FACILITY. THE SECOND STEP INVOLVES A SUBMITTAL OF A PART B APPLICATION, AND THAT IS THE STEP WE ARE CURRENTLY UNDERTAKING. E.P.A. WILL

REVIEW THE PART B APPLICATION AND ULTIMATELY WILL MAKE A DECISION ON THE FINAL PERMITTING OF THE FACILITY.

AS I MENTIONED ABOVE, THE FACILITY WHICH QUALIFIED FOR R.C.R.A. INTERIM STATUS INCLUDES TWO REACTIVATION UNITS, NAMELY R.F.-1 AND R.F.-2, "R.F." STANDING FOR REACTIVATION FURNACE.

THESE TWO UNITS HAVE A TOTAL COMBINED REACTIVATION CARBON PRODUCTION OF 1,200 POUNDS PER HOUR. CURRENTLY THE FACILITY HAS A SINGLE REACTIVATION UNIT IN OPERATION WITH A PRODUCTION CAPACITY OF APPROXIMATELY 600 POUNDS PER HOUR.

R.F.-1, AS I MENTIONED BEFORE, IS A HERRESHOFF DESIGNED MULTIPLE-HEARTH FURNACE. IN ACCORDANCE WITH A JUNE 3RD, 1994 LETTER FROM THE E.P.A. REGION 9, THE SECOND REACTIVATION UNIT, WHICH CAN BE SEEN HERE--THIS WOULD BE R.F.-1 AND THIS IS 2--THE SECOND REACTIVATION UNIT WILL BE INSTALLED IN TWO PHASES.

THE FIRST PHASE R.F.-2 WILL BE CONSTRUCTED TO HAVE THE REMAINING CAPACITY FOR THE INTERIM STATUS FACILITY. WHEN THE FIRST PHASE OF CONSTRUCTION IS COMPLETED, R.F.-1, THE EXISTING FURNACE, WILL BE SHUT DOWN AND DISABLED. AND AT THE END OF THAT CONSTRUCTION PERIOD, R.F.-2 WILL HAVE A-- LET ME START AGAIN HERE.

WHEN THE FIRST PHASE OF CONSTRUCTION IS COMPLETED, R.F.-2--R.F.-1 WILL BE SHUT DOWN AND DISABLED.

THE SECOND PHASE OF CONSTRUCTION PERIOD, R.F.-2 WILL HAVE A TOTAL CAPACITY--THAT BEING THIS FURNACE--OF 1,200 POUNDS PER HOUR WHICH IS OUR INTERIM STATUS LIMIT.

IN ADDITION, THE PART B APPLICATION REQUESTS AUTHORIZATION TO RE-COMMISSION AND OPERATE UNIT R.F.-1 PROVIDING AN ADDITIONAL 600 POUNDS PER HOUR OF PRODUCTION CAPACITY AND INCREASING THE TOTAL FACILITY CAPACITY FROM 1,200 POUNDS PER HOUR TO 1,800 POUNDS PER HOUR.

THE HAZARDOUS WASTE STORAGE AND TREATMENT COMPONENTS OF THE PARKER FACILITY CONSIST OF THE FOLLOWING HAZARDOUS WASTE MANAGEMENT UNITS: CONTAINER AND BULK UNLOADING WOULD BE THIS AREA HERE. THE STORAGE AND CONTAINER AREA IS--IS IN THAT AREA. SPENT CARBON STORAGE TANKS WOULD BE THESE FOUR TANKS, AND THE TWO REACTIVATION UNITS, R.F.-2 AND R.F.-1, ARE SEEN THERE. THIS IS PRETTY MUCH WHAT WE HAVE IN THE FACILITY IS WHAT WE GET IN.

THE PART THAT WE TALKED ABOUT, THE ACCEPTANCE OF THE SPENT CARBON ENTERING THE PROCESS AND REACTIVATION, WE WOULD LIKE TO TAKE A MINUTE TO TALK ABOUT FIRST THE MATERIAL ENTERING THE FACILITY AND WHAT TYPES OF WASTE WE TREAT.

THE FACILITY ONLY TREATS SPENT ACTIVATED CARBON. NOTHING ELSE. ACTIVATED CARBON IS USED TO PREVENT AIR AND WATER POLLUTION, AND DIFFERENT INDUSTRIES COULD BE PETROLEUM REFINERIES, CHEMICAL PLANTS, AND OTHER TYPES OF

INDUSTRIES LIKE THAT.

THE MAJORITY OF THE SPENT CARBON ORIGINATES FROM PETROLEUM REFINERIES WHICH FOR WASTE CODES IS THE D018 WHICH IS MAINLY BENZENE OR GASOLINE OR COULD BE A BYPRODUCT WHICH ESSENTIALLY COMES INTO THE PLANT WITH A CONTAMINANT LOADING OF BETWEEN--WELL, I SHOULDN'T SAY BETWEEN--BETWEEN IN THE PART PER MILLION OR PART PER BILLION LOADING. IT'S NOT VERY HIGHLY LOADED.

WE'D LIKE TO TELL YOU THAT ALSO THE WASTE THAT WE CAN TREAT--THE PART B PERMIT IS SITTING RIGHT HERE--THE WASTE THAT WE CAN TREAT IS IN THE PART A AND THE PART B.

THE MATERIAL THAT EXITS THE FACILITY-- THE MATERIAL THAT COMES INTO THE FACILITY COMES IN BY DRUMS, CUSTOM VESSELS, 1,000 POUND SUPERSACKS, 10,000 POUND ROLL-OFFS, AND 20,000 POUND SLURRY TRUCKS.

THERE'S REALLY FOUR THINGS THAT EXIT THE FACILITY. NUMBER ONE IS THE REACTIVATED CARBON THAT'S GOING BACK TO ITS CUSTOMERS FOR REUSE. SCRUBBER WATER THAT IS DISCHARGED TO THE LOCAL P.O.T.W., THE JOINT VENTURE SYSTEM; SCRUBBED OFF GAS FROM THE REACTIVATION FURNACE, WHICH YOU SEE OUT OF OUR STACK WHICH IS BASICALLY STEAM; AND DEBRIS SUCH AS GLOVES, BOOTS, COVERALLS, AND USED PIPING OR PUMP PARTS THAT HAVE COME IN CONTACT WITH SPENT CARBON. WE ALSO HAVE A SMALL AMOUNT OF SLAG THAT IS GENERATED IN OUR PROCESS THAT IS SHIPPED OFF AS WASTE.

THE FACILITY STRIVES TO MINIMIZE THE AMOUNT OF WASTE GENERATED AT THE FACILITY DURING THE PHASES OF THE PROCESS, WHICH INCLUDE WE--ANY RAIN WATER WE CATCH, WE PUT BACK INTO OUR PROCESS AND WE REUSE THAT WATER FOR TRANSPORTING THE SPENT CARBON. INTERNALLY WE ALSO USE THE RECYCLED WATER, PROCESSED-WATER, TO SLURRY THE SPENT CARBON OVER AND OVER AGAIN.

WE STRIVE TO RECOVER ALL USABLE REACTIVATED CARBON PRODUCT, AND WE ALSO CLEAN AND REUSE ANY AMOUNT OF P.P.E., OR PERSONAL PROTECTIVE EQUIPMENT, THAT WE CAN.

THERE ARE REALLY THREE TYPES OF POLLUTION CONTROL MEASURES AT THE FACILITY. I DESCRIBED THE AIR POLLUTION CONTROLS FOR THE REACTIVATION FURNACE EARLIER. THESE INCLUDE GASES THAT EXIT THE STACK WHICH ARE CONTINUOUSLY MONITORED FOR OXYGEN AND CARBON MONOXIDE.

SIMILAR CONTINUOUS MONITORING SYSTEMS WILL BE INSTALLED ON THE SECOND UNIT. THE OXYGEN IS MEASURED AND IS FED BACK TO A CONTROLLER WHICH ENSURES THE PROPER AMOUNT OF OXYGEN IS ADDED TO THE AFTERBURNER FOR COMPLETE COMBUSTION. THE CARBON MONOXIDE IS MEASURED CONTINUOUSLY AS A MEANS FOR DOCUMENTING INTERNALLY THAT COMPLETE COMBUSTION HAS OCCURRED.

IN A STACK TEST CONDUCTED IN JANUARY OF 1994, THE DESTRUCTION RATE OF ORGANIC COMPOUNDS ACROSS THE FURNACE AND AFTERBURNER WAS DETERMINED TO BE--LET ME WRITE THIS

DOWN--99.9995 PERCENT. THE E.P.A. REQUIREMENT IS 99.99 PERCENT.

THE BOILER AND INDUSTRIAL FURNACE RULE REGULATIONS STATE THE PERMISSIBLE LIMIT FOR CARBON MONOXIDE TO BE A HUNDRED PARTS PER MILLION ON A ROLLING HOUR AVERAGE.

WHILE THE C.O. LEVELS AT THE FACILITY MAY VARY, STACK TESTS CONDUCTED IN JANUARY SHOW C.O. TO BE BETWEEN 1 P.P.M. AND 4 P.P.M. WHICH IS AT LEAST 25 TIMES BETTER THAN ALLOWED FOR BOILER AND INDUSTRIAL FURNACES.

WE ALSO HAVE TWO BAGHOUSE SYSTEMS ON SITE, ONE FOR SPENT CARBON AND ONE FOR REACTIVATED PRODUCT. WHEN THE SECOND UNIT IS BUILT AND INSTALLED, THE BAGHOUSE FOR THE SPENT CARBON HOPPERS WILL BE REPLACED WITH ATOMIZING WATER SPRAYS FOR DUST SUPPRESSION.

THE NEW PACKAGING AREA WILL ALSO BE EQUIPPED WITH A NEW BAGHOUSE TO COLLECT DUST FROM THE SCREENING PROCESS. THE EXISTING BAGHOUSE WILL BE DEMOLISHED WHEN THE NEW BAGHOUSE IS INSTALLED BECAUSE IT WILL NO LONGER BE NEEDED.

WE ALSO HAVE TWO CARBON ABSORBERS AT THE FACILITY, ONE FOR THE SPENT CARBON COMING--EXCUSE ME--THE SPENT CARBON SITE BAGHOUSE AND ALSO FOR AIR DISPLACED FROM TANKS, THE SPENT CARBON STORAGE TANKS. THESE CONTROL POTENTIAL ORGANIC EMISSIONS FORM THESE SOURCES.

WESTATES CARBON-ARIZONA, INC. AND WHEELABRATOR

BELIEVE IN STRICT COMPLIANCE WITH ALL ENVIRONMENTAL LAWS. WE HAVE SHOWN OUR COMMITMENT TO OUR EMPLOYEES, TO THE COLORADO RIVER INDIAN TRIBES, AND TO THE TOWN OF PARKER OVER THE PAST TWO YEARS.

I ASSURE YOU OUR DEDICATION AND COMMITMENT WILL CONTINUE OVER THE YEARS TO COME.

DO WE HAVE ANY QUESTIONS OR COMMENTS?

(NO RESPONSE.)

MR. MC CUE: OKAY.

(THE PROCEEDINGS WERE CONCLUDED AT 7:24 P.M.)

CERTIFICATE OF REPORTER

STATE OF ARIZONA)
)
COUNTY OF MOHAVE)

I, DAWN M. MAXFIELD NEE PAULSEN, R.P.R., CALIFORNIA C.S.R. NO. 10491, COURT REPORTER, DO HEREBY CERTIFY THAT I TOOK DOWN IN SHORTHAND (STENOTYPE) ALL OF THE PROCEEDINGS HAD IN THE ABOVE-ENTITLED MATTER AT THE TIME AND PLACE INDICATED, AND THAT THEREAFTER SAID SHORTHAND NOTES WERE TRANSCRIBED INTO TYPEWRITING AT AND UNDER MY DIRECTION AND SUPERVISION, AND THE FOREGOING TRANSCRIPT CONSTITUTES A FULL, TRUE AND ACCURATE RECORD OF THE PROCEEDINGS HAD.

IN WITNESS WHEREOF, I HAVE HEREUNTO AFFIXED MY HAND THE 9TH DAY OF OCTOBER, 1994.

Dawn M. Maxfield

DAWN M. MAXFIELD NEE PAULSEN, RPR, CA CSR 10491

SIGN-IN SHEETS FROM OCTOBER 4, 1994
PUBLIC MEETING

WESTATES CARBON-ARIZONA, INC.
PART B APPLICATION PUBLIC MEETING
OCTOBER 4, 1994 – 7:00 PM
SIGN-IN SHEET

	NAME	ADDRESS	AFFILIATION
1	Peter Nimkoff	Box 1924, Parker	C.R.I.T.
2	[illegible]	Parker	N/A
3	Mr and Mrs [illegible]	1401 5TH STREET PARKER, AR	W.C.A.I
4	Cambria [illegible]	1517 Saguaro, LHC	Court Reporter
5	DAWN MAXFIELD	21710 McCulloch Blvd., Ste 8 LHC, AZ	Court Reporter
6	MONTE McCUE	2709 SOUTHWIND P, LHC	WCAI
7	[illegible] Sichak	917 Mohave, Parker	WCAI
8	[illegible]	P.O. Box 281 Bouse Az	WCAI
9	Marcia Goring	4280 Comstock LHC Az	WCAI
10	Paul Young	Liberty Lane Hampton NH	WES
11	Kathy Kvarda	20811 Industry Rd Anderson	Wheelabrator
12	[illegible] Bugstewa Sr	R21 Box 83-B Parker Az 85344	CRIT
13	[illegible]	PO Box 559 Parker Az	WCAI
14	MATT KILLEEN	LIBERTY LANE, HAMPTON, NH	WEST
15	John Maxfield	3257 AZTEC DR LHC AZ	N/A
16	MIKE TROUP	1121 AL SEIER Rd. HOOVER, AL.	WESTATES/RUST
17	Bill Carlson	3200 Marlene Ave, Redding, CA. 96002	WEST
18	MARC BROWNING	577 NAVAJO, PARKER AZ	WESTATES CARBON
19	CLIFF ANDERSON & [illegible]	130 HARBOR PARKER AZ	WESTATES CARBON
20	JOHN KELSEY	22 MARINA VIG. ANNEX PARKER, AZ	WESTSTATES CARBON

WESTATES CARBON–ARIZONA, INC.
PART B APPLICATION PUBLIC MEETING
OCTOBER 4, 1994 – 7:00 PM
SIGN–IN SHEET

	NAME	ADDRESS	AFFILIATION
21	Jonathan Speier	CRIT	CRIT
22	Jennifer Enke	P.O Box 281 Bodie	
23			
24			
25			
26			
27			
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COPY OF AUGUST 24, 1994 ADVERTISEMENT IN THE PARKER PIONEER

August 24, 1994 Parker Pioneer Page 15

COPY

NOTICE

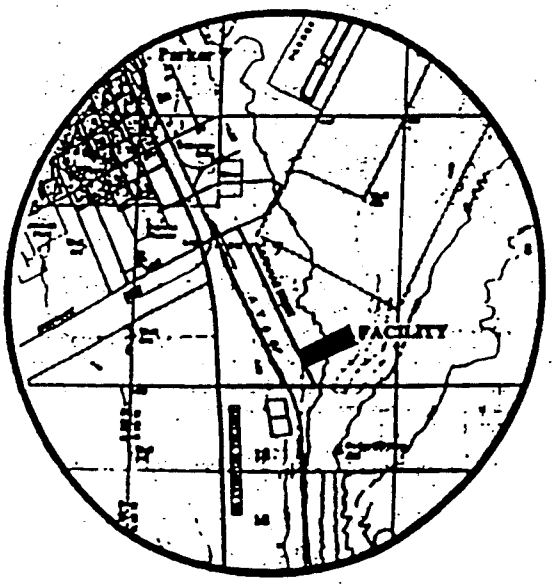
Westates Carbon-Arizona, Inc., located at 2523 Mutahar Street in Parker, Arizona will hold a public meeting prior to submitting a Part B permit application to the Environmental Protection Agency. The purpose of the meeting is to solicit questions and to provide information about the facility and hazardous waste management activities at the facility. Westates Carbon-Arizona, Inc. is a carbon reactivation facility which recycles "spent" or "used" activated carbon, thereby making it a usable product. The permit application contains a proposal to increase the capacity of the facility.

The meeting will be held October 4, 1994, at 7:00 P.M., at the Job Training Partnership Act/Johnson O'Malley building, located at Agency Road and First Avenue, Parker, Arizona.

The meeting location is reasonably accessible to persons with a mobility impairment. However, any person needing special access to attend or participate in the meeting should contact the facility, at (602) 669-5758, at least 72 hours prior to the start of the meeting.

An appointment for a tour of the facility can be made by calling the above number. Tours will be available September 26-30 between the hours of 10:00 A.M. - 6:00 P.M.

The following is a map depicting the location of the facility.



FACILITY LOCATION MAP

PARKER PIONEER PROOF OF PUBLICATION

AFFIDAVIT OF PUBLICATION

STATE OF ARIZONA
COUNTY OF LA PAZ, ss.

Jon Fishman Jon Fishman

of said county, being duly sworn, deposes and says:
that he is and at all times herein mentioned was a citizen of the United States, over the age of twenty-one years, and is competent to be a witness on the trial of the above entitled action, and that he is not a party to, nor interested in the above entitled matter.

That he is the printer and publisher of the

PARKER PIONEER

(published weekly) and which is a weekly newspaper of general circulation, published and circulated in the said County of La Paz, and is published for the dissemination of local news and intelligence of a general character, and has a bona fide subscription list of paying subscribers, and said newspaper has been established and published in the city of Parker, County of La Paz, State of Arizona, for at least one year next before the publication of the first insertion of this notice; and said newspaper is not devoted to the interests of, or published for the entertainment of any particular class, profession, trade, calling, race or denomination, or any number thereof.

That the NOTICE

Westates Carbon-Arizona

of which the annexed is a printed coy, was published in said newspaper

at least 1 Times commencing on the 24 day of

August, 19 94 and ending on the 24

day of August, 19 94.

both above days inclusive, and in the regular and entire issue of said newspaper proper, and not in a supplement: and said notice was published therein on the following dates, to-wit:

August 24, 1994

Subscribed and sworn to before me this 8 day of Sept., 19 94

COST: $ 84.97

Notary Public in and for the County of La Paz, State of Arizona

My Commission Expires July 24, 1995

AUGUST 19, 1994 LETTER FROM M. MCCUE TO D. EDDY, JR

Westates Carbon-Arizona, Inc.

2523 Mutahar Street
P.O. Box E
Parker, AZ 85344
Tel. 602-669-5758
Fax. 602-669-5775/5776

VIA CERTIFIED MAIL

August 19, 1994

COPY

Daniel Eddy, Jr.
Chairman
Colorado River Indian Tribes
Route 1, Box 23-B
Parker, Arizona 85344

Chairman Eddy:

Attached is the notice for a public meeting prior to the Part B permit submission. I have been working closely with Peter Nimkoff and Conner Byestewa on the orchestration of this meeting. We have scheduled the meeting for October 4, 1994 at the Job Training Partnership Act/Johnson O'Malley building at 7:00 pm.

The attached notification will appear in the Parker Pioneer 30 days prior to the meeting and also on the local radio station KLPZ. A sign will also be posted in front of the facility during this time with the same statement.

The notice also contains a statement to extend the invitation for tours of the facility to those interested the week preceding the public meeting.

The attached notice is for CRIT to post or communicate however you think will reach the most people.

I would like to thank you, Peter and Conner for the continuing assistance and cooperation.

Sincerely,

Monte McCue
Plant Manager

cc: Conner Byestewa
Peter Nimkoff

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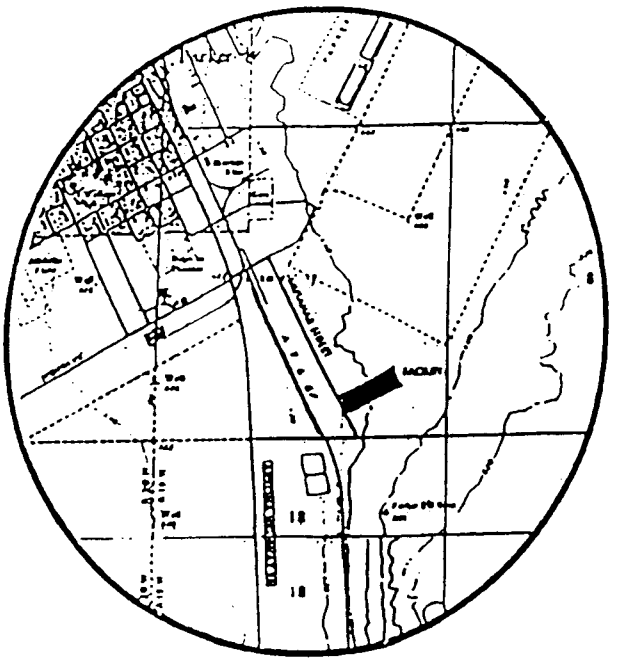


Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Daniel Eddy, Jr.
Chairman
Colorado River Indian Tribes
Route 1, Box 23-B
Parker, Arizona 85344

4a. Article Number

Z-683-237-397

4b. Service Type

☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery

8-22-94

5. Signature (Addressee)

6. Signature (Agent)

8. Addressee's Address (Only if requested and fee is paid)

PS Form 3811, December 1991 U.S. GPO: 1993—352-714 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

PROOF OF BROADCAST ON KLPZ

KLPZ 1380 am COUNTRY

AFFIDAVIT OF PERFORMANCE
TIME SCHEDULE

ACCOUNT WESTATES CARBON AGENCY _____

MONTH AUGUST 25, 1994

1.	16.
2.	17.
3.	18.
4.	19.
5.	20.
6.	21.
7.	22.
8.	23.
9.	24.
10.	25. 6:23 AM
11.	26.
12.	27.
13.	28.
14.	29.
15.	30.
	31.

Before me, a Notary Public, personally appeared PENNIE DICKINSON
Title GENERAL MANAGER who being duly sworn, deposes and says that as an employee of Radio Station KLPZ the programs listed above were broadcast as specified. Pennie Dickinson

Sworn and subscribed to before me this 25th day of August 19 94

State of Arizona
La Paz County ss.

Judy Whitehead
Notary Public

OFFICIAL SEAL
JUDY WHITEHEAD
Notary Public - State of Arizona
LA PAZ COUNTY
My Comm. Expires Sept. 20, 1996

APPENDIX N

ROBERT M. EARSY P.E.

Consultant

Noise Measurement
Analysis & Control

32 Parker Street
Lexington, MA 02173
(617) 862-8293
(617) 862-1841 (FAX)

MEMORANDUM

February 16, 1996

TO: Matt Killeen

FROM: Bob Earsy

SUBJECT: Effect of Westates Carbon, Parker, AZ Facility on Community Noise

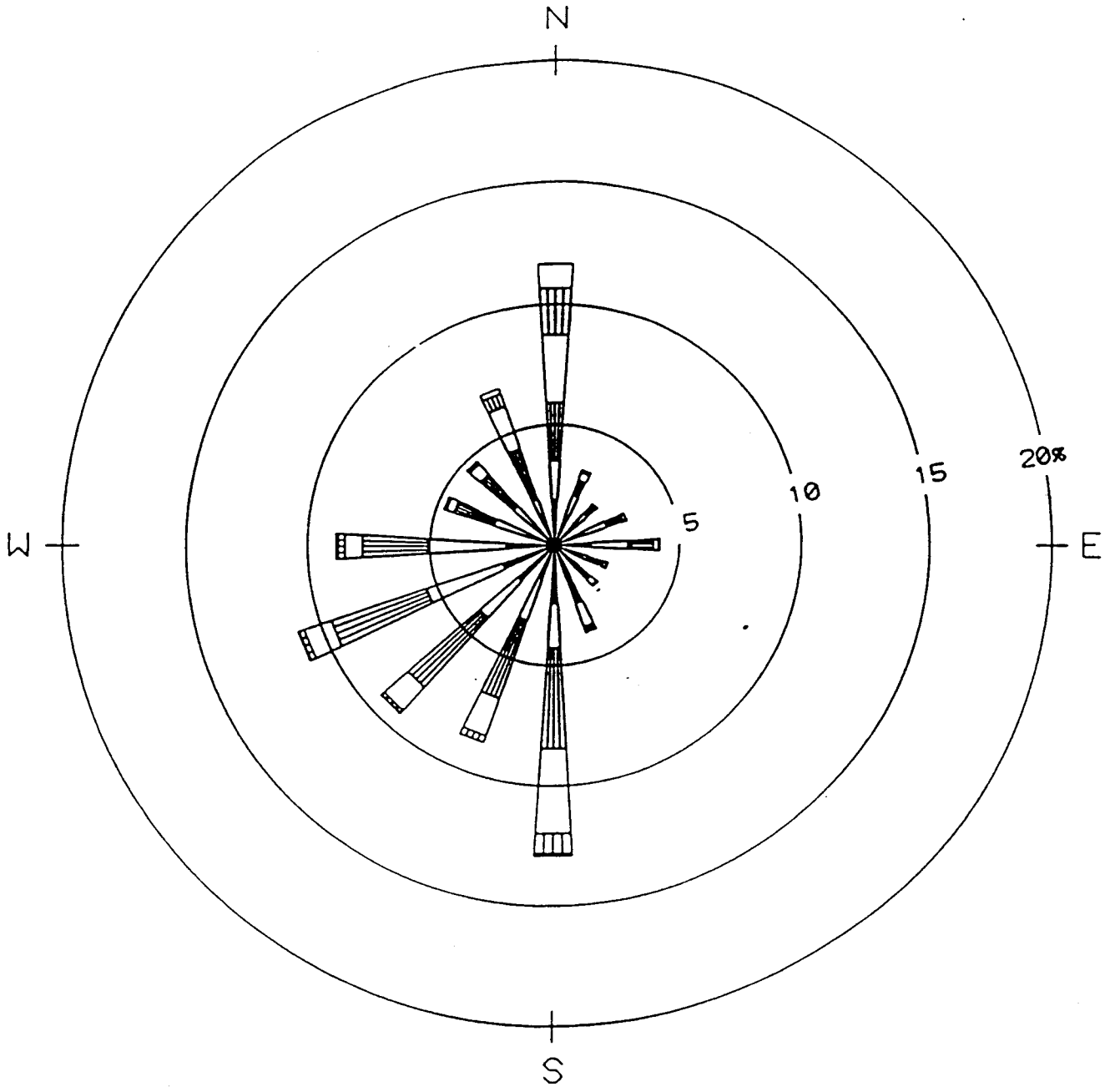
The following summary is based upon the facility related material that you sent to me yesterday and today's conversations with yourself and with plant management.

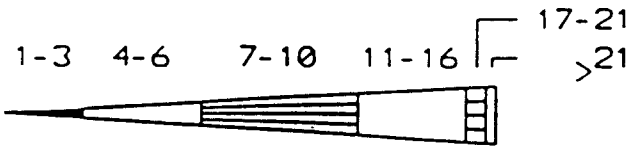
The subject facility is currently operating at a product capacity of approximately 600 lb/hr. However, the original environmental assessment evaluated the impacts associated with a facility with a capacity of 1,000 lb/hr. The facility is proposing to increase the production capacity to 1,200 lb/hr, construct a processing and warehousing building, and relocate certain facility operations.

The proposed change would represent a doubling of facility capacity in terms of the current actual production rate. This will be achieved by a combination of adding new equipment and by replacing existing equipment with higher capacity units. In both cases, the new equipment is understood to be of similar design and quality or an improvement, in terms of noise emissions. Furthermore, the physical location of the equipment will not be any closer to the only identified noise sensitive receptor, a small office building near the corner of Shea Street and Mutahar Street, approximately 920 feet southwest of the reactivation facility. The effect of doubling the number of identical noise sources at a given location is to increase the resulting noise emission by 3 decibels. The effect of replacing an existing piece of equipment by equipment of the same type and design but of double the capacity would also normally be approximately 3 decibels. In the case of the induced draft (ID) fan, a larger capacity fan with an improved draft control system will be employed. The original ID fan was a fixed speed unit that employed variable damper blade draft control. The new fan will employ a combination of variable speed and louver vanes for draft control. This latter approach, will result in lower noise levels when compared to the same fan employing variable damper blade draft control. Based upon these considerations, the resulting noise from the facility, evaluated at the office building receptor would be expected to increase a maximum of 3 dBA. It is more likely that the increase will be less than this figure, due to the improvement in the ID fan, some of the new equipment being located at greater distances than existing equipment, and blockage effects associated with intervening new structures (the processing and warehousing building and the administration building). A change in outdoor noise level of 3 decibels is considered to be "just discernible" by most people (Bolt Beranek and Newman, Inc., Fundamentals and Abatement of Highway Traffic Noise, Report No. PB-222-703, page 1-35. Prepared for Federal Highway Administration. June 1973.). For the workers in the office building the change would be much less than 3 decibels, because of the attenuation of the office building walls and presence of normal office background noise would mask any residual contribution of facility noise through the office wall system. Therefore, the resulting noise impact of increasing the facility capacity to 1,200 lb/hr, in terms of equipment noise, is expected to be negligible.

The capacity increase will also increase the number of truck trips. However, the actual number of trucks currently servicing the facility (delivering spent activated carbon and shipping finished product) is an extremely small number; approximately one per day or 6 or 7 trucks per week. The total number of trucks associated with the expanded 1,200 lb/hr facility is expected to be two per day or approximately 12 to 13 truck trips per week. The change from one to two truck trips per day in the vicinity of the previously noted noise receptor, would not have a significant effect on the office work environment.

APPENDIX O





WIND SPEED CLASSES
(KNOTS)

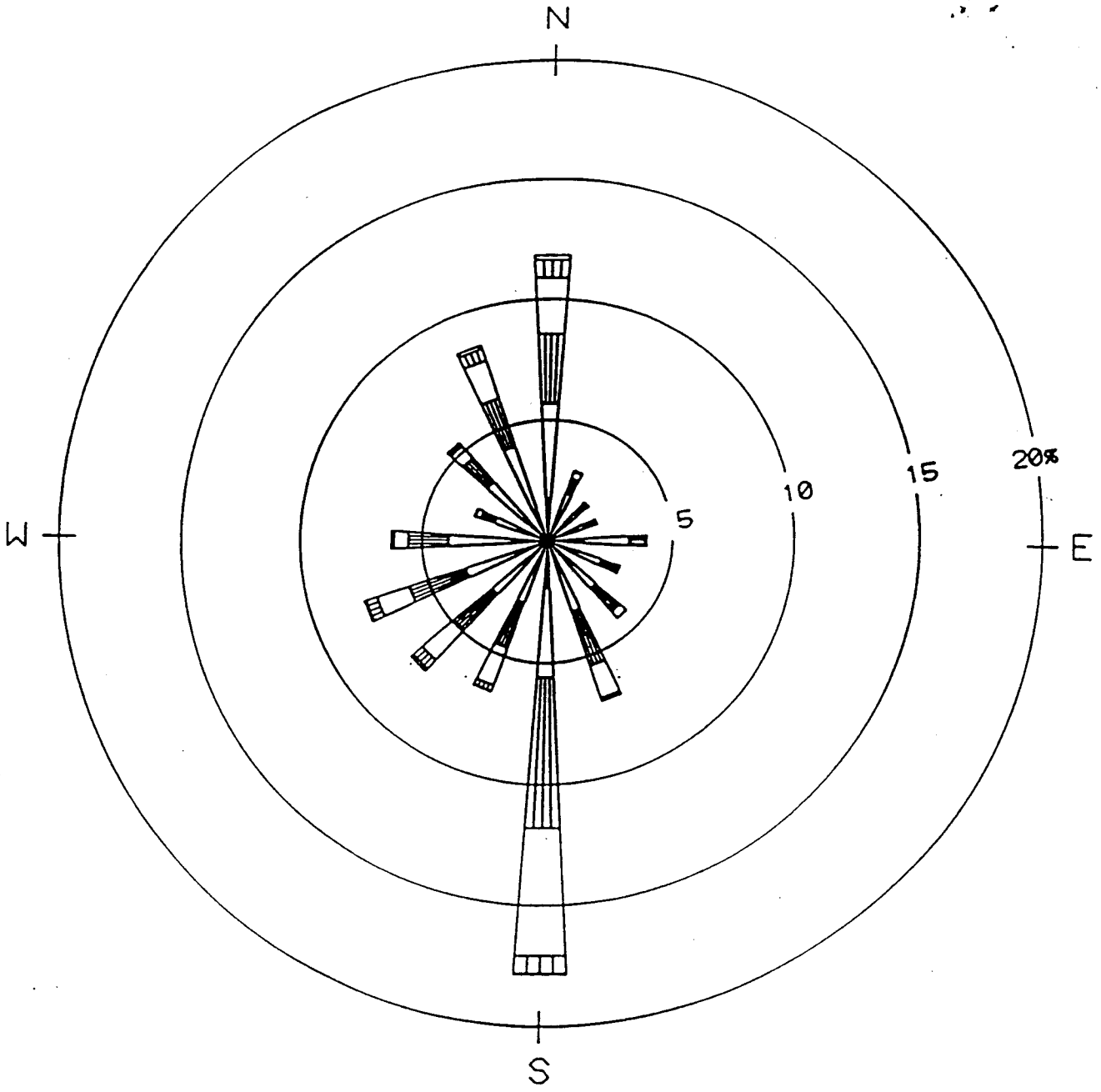
WINDROSE

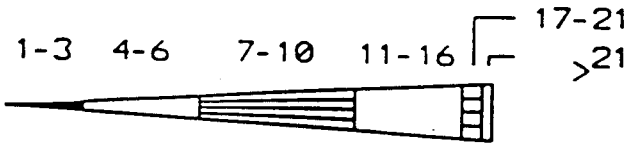
STATION NO. 23179
NEEDLES, CA
PERIOD: 1969-1974

NOTES:
DIAGRAM OF THE FREQUENCY OF OCCURRENCE FOR EACH WIND DIRECTION. WIND DIRECTION IS THE DIRECTION FROM WHICH THE WIND IS BLOWING. EXAMPLE - WIND IS BLOWING FROM THE NORTH 11.7 PERCENT OF THE TIME.

Bowman
Environmental Engineering

SEE APPENDIX XXIX FOR ADDITIONAL DISCUSSION OF METEOROLOGICAL DATA





WIND SPEED CLASSES
(KNOTS)

WINDROSE

STATION NO. 23158
BLYTHE, CA
PERIOD: 1969-1974

NOTES:
DIAGRAM OF THE FREQUENCY OF OCCURRENCE FOR EACH WIND DIRECTION. WIND DIRECTION IS THE DIRECTION FROM WHICH THE WIND IS BLOWING. EXAMPLE - WIND IS BLOWING FROM THE NORTH 11.8 PERCENT OF THE TIME.

Bowman
Environmental Engineering

SEE APPENDIX XXIX FOR ADDITIONAL DISCUSSION OF METEOROLOGICAL DATA

APPENDIX P

United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
COLORADO RIVER AGENCY
Route 1, Box 9-C
Parker, Arizona 85344

IN REPLY REFER TO:

FOR IMMEDIATE RELEASE

MAR 12 1996

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT - WESTATES CARBON, INC.

CONTACT: GOLDIE M. STROUP, ENVIRONMENTAL COORDINATOR
(520) 669-7141 or (520) 669-7145; FAX (520) 669-7187

The Colorado River Agency, Bureau of Indian Affairs, announces the availability of a Supplemental Environmental Assessment (SEA) for the proposed expansion of the carbon reactivation facility located on land leased from the Colorado River Indian Tribes within the boundaries of the Colorado River Indian Reservation in La Paz County, Arizona. This proposed expansion will include an increase in the operating capacity of the plant and construction of an additional processing and warehouse building within the existing leased premises. A copy of the SEA may be reviewed at the Colorado River Agency, Natural Resources Office Conference room, Bldg. No. 4, Parker, Arizona. A copy is enclosed for your review and comments.

We would appreciate any comments that you may have on the assessment. Please submit written comments by **close of business on March 29, 1996** to:

Mr. Allen Anspach, Superintendent
Bureau of Indian Affairs
Colorado River Agency
Route 1, Box 9-C
Parker, Arizona 85344

A determination on issuance of a Finding of No Significant Impact (FONSI) will be made following the comment period. If you have any questions concerning the SEA, please contact Ms. Goldie Stroup, at (520) 669-7141; Ms. Amy Heuslein or Mr. John Krause, BIA Phoenix Area Office, Environmental Quality Services at (602) 379-6750.

Allen J. Anspach

Superintendent

ADDRESSES

Patricia Port
Department of Interior
Regional Environmental Officer
600 Harrison Street Suite 515
San Francisco, CA 94017

Mr. Sam F. Spiller
State Supervisor
United States Department of Interior
Fish and Wildlife Service
Arizona Ecological Services Field Office
2321 West Royal Palm Road, Suite 103
Phoenix, Arizona 85021-4951

Denise Meridith
State Director
Arizona State Office
Bureau of Land Management
P.O. Box 16563
Phoenix, AZ 85011-6563

Ethel DeMarr
Waste Programs Division
Arizona Dept. of Environmental Quality
3033 N. Central Avenue
Phoenix, AZ 85012

Dave Farrel, Branch Chief
Office of Federal Activities (E-3)
Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, CA 94105

Clancy Tenley
Indian Programs Team Manager
Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, CA 94105

Mr. Conner Byestewa
Environmental Protection Office
Colorado River Indian Tribes
Route 1, Box 23-B
Parker, AZ 85344

Mr. Daniel Eddy, Jr. Chairman
Colorado River Indian Tribes
Route 1, Box 23-B
Parker, AZ 85344

A.J. Battistone
Environmental Director
La Paz County
1112 Joshua Avenue
Suite 206
Parker, AZ 85344

Joe Albo
Arizona Department of Public Safety
P.O. Box 6638
Phoenix, AZ 85005

State Director
Natural Resources Conservation Service
3003 N. Central Avenue
Phoenix, AZ 85012

Marjorie Blaine
Biologist
3636 N. Central Avenue
Suite 760
Phoenix, AZ 85012-1936

Joe Liebhauser
Area Manager, Havasu Resource Area
Bureau of Land Management
3189 Sweetwater Avenue
Lake Havasu City, AZ 86406

Glenn Hill
Town Manager
P. O. Box 609
Parker, AZ 85344

Charlene Peterson
Mayor
Parker Town Council
P.O. Box 609
Parker, AZ 85344

Deliver a copy to:

Parker Public Library
Indian Health Service, Attn: Butch Creamer
Colorado River Indian Tribes Museum/Library
BIA, Natural Resources Conference Room

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
ARIZONA-NEVADA AREA OFFICE
3636 NORTH CENTRAL AVENUE, SUITE 760
PHOENIX, ARIZONA 85012-1936

430
410
JLF

REPLY TO
ATTENTION OF:

March 19, 1996

Office of the Chief
Regulatory Branch

Bureau of Indian Affairs
ATTN: Mr. Allen Anspach, Superintendent
Colorado River Agency
Route 1, Box 9-C
Parker, Arizona 85344

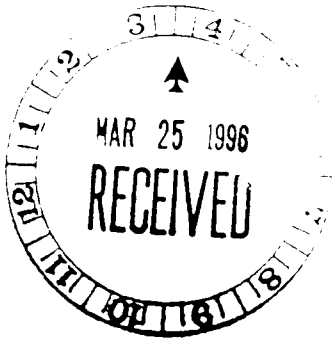
File Number: 964-0259-MB

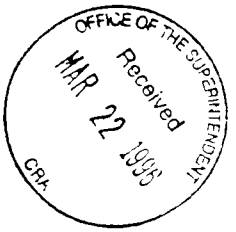
Dear Mr. Anspach:

This is in response to the Supplemental Environmental Assessment (EA) for Westates Carbon, Inc. dated March 12, 1996. Westates proposes to expand the existing carbon reactivation facility at Lots 13 and 14 of the CRIT Industrial Park, 1/2 mile southeast of Parker (Section 7, T9N, R19W), La Paz County, Arizona.

This activity may require a Department of the Army permit issued under Section 404 of the Clean Water Act. A Section 404 permit is required for the discharge of dredged or fill material into the "waters of the United States," including adjacent wetlands. Examples of activities requiring a permit are placing bank protection, temporary or permanent stock-piling of excavated material, grading roads, grading (including vegetative clearing operations) that involves the filling of low areas or leveling the land, constructing weirs or diversion dikes, constructing approach fills, and discharging dredged or fill material as part of any other activity.

We were unable to ascertain from information provided in the Supplemental EA if there are washes within the proposed expansion area, or outside of the area but which will be impacted by any of the above activities. If washes are present and/or may be impacted by the expansion, we will need to conduct a jurisdictional delineation to determine if activities affecting the washes are regulated under Section 404. If there are no washes present to be impacted by the expansion, a Section 404 permit is not required.





We appreciate the opportunity to provide comment on this document. If you have questions, please contact Marjorie E. Blaine at (602) 640-5385 x 227. Please refer to file number 964-0259-MB in your reply.

Sincerely,

Cindy Lester

Cindy Lester
Chief, Arizona Section
Regulatory Branch

Westates Carbon-Arizona, Inc.

2523 Mutahar Street
Post Office Box E
Parker, AZ 85344
Tel. 520-669-5758
Fax. 520-669-5775/5776

VIA FAX

March 27, 1996

FILE COPY

Goldie Stroup
Bureau of Indian Affairs
Colorado River Agency
Route 1, Box 9-C
Parker, Arizona 85344

Re: Westates Carbon-Arizona, Inc. - SEA
Department Of The Army Comments
Comment Letter Dated March 19, 1996

Dear Goldie:

I spoke with Marjorie E. Blaine (602-640-5385 x 227) from the Department Of The Army today regarding the comments issued by Cindy Lester, Chief, Arizona Section Regulatory Branch from her office.

I explained to Ms. Blaine that Westates Carbon had previously requested a determination as to the applicability of Section 404 of the Clean Water Act. She could not locate the correspondence from the Department Of The Army dated June 24, 1991 to Robert Babbit of Westates Carbon, where a determination had already been made that the project was not subject to jurisdiction under Section 404 of the Clean Water Act and therefore no Section 404 permit is required. I have attached this letter and have also faxed one to Ms. Blaine.

During our conversation Ms. Blaine suggested I send you a copy of the letter as evidence the project is not required to be permitted under Section 404 of the CWA.

Sincerely,

Monte McCue
Plant Manager

cc: Allen Anspach - Colorado River Agency Superintendent (w/ attachment)
Matt Killeen - WESI (w/ attachment)
SEA File

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
P.O. BOX 2711
LOS ANGELES, CALIFORNIA 90053-2325

JUN 24 1991

REPLY TO
ATTENTION OF

Office of the Chief
Regulatory Branch

Robert Babbitt, Project Manager
Westates Carbon
2130 Leo Avenue
Los Angeles, CA 90040-1634

File Number: WEST-CRB-KR

Gentlemen:

Reference is made to your application and/or letter of April 25, 1991 in which you inquired as to whether or not a Section 404 permit is required from the U.S. Army Corps of Engineers to locate a new Carbon Reactivation Plant facility at the Town of Parker, La Paz County, Arizona, Section 7, T9N R19W.

Based on the information furnished in your application and/or letter (referenced above), we have determined that your proposed project does not discharge dredged or fill material into a water of the United States or an adjacent wetland. Therefore, the project is not subject to our jurisdiction under Section 404 of the Clean Water Act and no Section 404 permit is required from our office.

The receipt of your application and/or letter is appreciated. If you have any questions please contact Karen Reichhardt of my staff at (602) 640-5385.

Sincerely,

Diane K. Noda

Diane K. Noda
Acting Chief, Northern Section

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street

San Francisco, CA 94105-3901

APR 1996 RECEIVED PHOENIX AREA OFFICE ENVIRONMENTAL SERVICES

FAX TRANSMITTAL # of pages ▸ 3
To Amy Heuslein, Dept/Agency BIA
From David Tomsovic, Phone # 415-744-1569
Eddie: A. Stamp. Confirm receipt of FAX

April 4, 1996

MEMORANDUM

SUBJECT: US EPA Comments on Supplement to Final Environmental Assessment

FROM: David Tomsovic, Environmental Specialist
Office of Federal Activities, US EPA Region IX

TO: Amy Heuslein, Environmental Quality Services
BIA Phoenix Area Office, PO Box 10, Phoenix AZ 85001

This memo documents our April 3 conversation on BIA's Supplement to the Final Environmental Assessment (SFEA) for **WESTATES CARBON REACTIVATION PLANT DEVELOPMENT PROJECT, COLORADO RIVER INDIAN RESERVATION, PARKER (La Paz County) Arizona.** BIA's Finding of No Significant Impact (FNSI) for the proposed facility expansion should, as appropriate, reflect these comments. EPA's comments:

1. Air Pollution Control Technology/Air Mitigation: The SFEA describes the air pollution control system that would be implemented as part of the project, including a discussion of flue gas treatment and protection against release of contaminants (pp. 2-6 and 2-7) and a mitigation discussion (p. 5-1). There is also a discussion (pp. 2-14 and 2-15) that because facility expansion is not subject to EPA's PSD permitting requirements (40 CFR 52.21), the criteria pollutant emissions levels are not Federally-enforceable. Because the criteria pollutant emissions levels are not Federally-enforceable, we believe that the air pollution controls and mitigation measures discussed in the SFEA are particularly important from both public health and environmental perspectives. We therefore recommend that the various air pollution control elements discussed in the SFEA be included by reference in the FNSI's mitigation commitments.

2. Lead and Other Metal Emissions: The expansion project would result in emissions of heavy metals such as lead, arsenic, cadmium and mercury (SFEA, Table 7-1). As we discussed, EPA believes it would be beneficial for BIA to discuss with Westates Carbon Arizona, Inc. whether it may be technically feasible to further reduce heavy metal emissions such as lead (without compromising any other emission controls at the facility). This would be especially important if lead-sensitive receptors were adjacent to or downwind from the facility (i.e., schools, childcare centers, etc). For reference I've attached a section from an air pollution engineering manual on municipal waste

combustion facilities (refuse incineration). Although refuse incineration may present a different range of impacts than the Westates Carbon facility, the attached section could present an opportunity to further reduce the facility's heavy metal emissions. EPA encourages BIA to discuss this with Westates Carbon Arizona, Inc. and/or their consultant. We recommend that the FNSI discuss whether it is or may be possible to reduce facility heavy metal emissions without compromising other emission controls currently in place, approved or proposed.

3. Pollution Prevention: The SFEA did not specifically recognize the Council on Environmental Quality (CEQ) memorandum (1/29/93 Federal Register - copy attached) on incorporating pollution prevention features in Federal agency NEPA documents. In it, CEQ encouraged Federal agencies to integrate pollution prevention features in NEPA planning and decisions. In its memo, CEQ wrote that "...any reasonable mechanism which successfully avoids, prevents, or reduces pollutant discharges or emissions other than by the traditional method...should...be considered pollution prevention." For your reference I've enclosed a copy of CEQ's 1993 memo and two checklists from EPA's POLLUTION PREVENTION/ ENVIRONMENTAL IMPACT REDUCTION CHECKLISTS (checklists for hazardous waste incinerators and waste storage/treatment facilities). We recognize that a number of the checklist suggestions may already be part of the project or an integral element of daily facility operations, while other checklist suggestions may prove inapplicable or inappropriate. Nevertheless, we encourage BIA, in cooperation with Westates Carbon Arizona, Inc., to review the enclosed checklists as a basis for a pollution prevention program for the project and facility. We suggest that the FNSI reflect a commitment to implement reasonable pollution prevention measures and that, as appropriate, the FNSI reference any checklist items that may be adopted.

I hope these comments prove useful to BIA and Westates Carbon Arizona, Inc. as the project moves ahead. Please send one copy of any subsequent NEPA documentation (including the FNSI) to me at the letterhead address. If you have any questions, please call me at 415-744-1569 (fax: 415-744-1598).

Enclosures

cc: Goldie M. Stroup
BIA Colorado River Agency
Route 1, Box 9-C Parker AZ 85344

Monte McCue, Westates Carbon Arizona, Inc.
PO Box E Parker AZ 85344

M.I. #000540

POLLUTION PREVENTION/ ENVIRONMENTAL IMPACT REDUCTION CHECKLISTS FOR NEPA/309 REVIEWERS

JANUARY 1995

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF FEDERAL ACTIVITIES
401 M STREET, SW
WASHINGTON, DC 20460

Prepared by

SCIENCE APPLICATIONS INTERNATIONAL CORPORATION
7600-A LEESBURG PIKE
FALLS CHURCH, VA 22043

EPA CONTRACT NO. 68-W2-0026
EPA WORK ASSIGNMENT NO. 33-II
SAIC PROJECT NO. 01-1030-07-1605-000

POLLUTION PREVENTION/ENVIRONMENTAL IMPACT REDUCTION CHECKLIST FOR HAZARDOUS WASTE INCINERATORS

How Can Hazardous Waste Incinerators Affect the Environment?

The planning, design, construction, operation/maintenance, and decommissioning of hazardous waste incinerators can have a variety of impacts on the environment. Various forms of hazardous waste (i.e., liquids, solids, sludges, slurries, and fumes) may be processed by incinerators. Environmental impacts from the hazardous waste incineration process include air pollution from gaseous and particulate emissions, soil contamination due to the deposition of airborne particulates and spills and associated contaminated runoff, and hazards associated with the handling, transportation, and disposal of hazardous residue materials. This checklist focuses on pollution prevention and environmental impact reduction opportunities available in the operation/maintenance of hazardous waste incinerators.

Also see checklist on Chemical Demilitarization.

What Questions Should Be Asked To Ensure That These Effects Are Minimized or Eliminated?

Transport and Storage of Hazardous Wastes and Fuels. Many, if not most, hazardous waste incinerators are located offsite from where the waste is generated. Consequently, hazardous wastes, as well as the fuel used to supplement the combustion process, must be transported to the incinerator facility. Most of the transportation is done in large bulk tankers. At the incinerator, the wastes and fuels are transferred to one or more onsite storage containers. The following opportunities can help reduce the environmental impact of the transport/handling and storage activities.

- Will incoming wastes be inspected and characterized (chemical composition, viscosity, ash, calorific-value, etc.) to allow the incinerator operator to maximize fuel efficiency?
- Will the facility screen/filter incoming hazardous wastes to identify unacceptable materials (by using radioactivity or metal detectors, strainers, etc.)? *
- Will the facility custom blend wastes to maximize efficiency and minimize environmental risks? Will multiple storage tanks be constructed to allow the facility to segregate incoming wastes to facilitate such blending?
- Will storage tanks be designed to prevent difficult-to-process sludges from building up at the bottom (e.g., agitation)? Will mixers or recirculators be used? *
- Will storage and transport systems be designed to manage and/or reduce the buildup of volatile emissions?
- Is it possible to use a filtration system to eliminate dirt and other non-combustible materials from incoming wastes and thus reduce incinerator ash residue?

* Indicates an environmental impact reduction opportunity.

Operation/Maintenance. From the storage system, the hazardous wastes and auxiliary fuels are transported to the incinerator via a system of pipes. At the incinerator, the hazardous wastes and fuels are combusted. Several environmental impacts can result from the incineration process. They include gaseous and particulate emissions, soil contamination and contaminated runoff, and pollutant releases associated with waste materials/packaging.

- Will the facility have preventive maintenance and inspection programs to help ensure that leaks will not occur? For example, will pump bearings be repacked on a regular basis to prevent possible leaking?

- Will the facility's pollution control equipment be tailored to meet the combustion emissions resulting from the specific hazardous wastes the plant is combusting? *

- Will the facility routinely inspect emission control equipment? *

- Are there opportunities to reduce the environmental impacts associated with cleaning materials, packaging, and other items coming into the facility (e.g., buy in bulk, purchase reusable containers, examine recycling options)?

- Are there provisions for the proper storage of materials to reduce spoilage, damage, and exposure to the elements?

- Does the facility have an adequate stormwater runoff and run-on plan. For example, how does the management address runoff from such potentially contaminated areas as the off-loading pad? *

- Are there provisions for reducing the potential for spills of hazardous wastes? Is there a spill prevention and control plan?

- Will the facility use supplies containing recycled content when possible and in accordance with accepted standards? Examples of materials/packaging that can be obtained with recycled-content include cleaning supply bottles, shop towels, and plastic wrap. *

- Are there opportunities to reduce the amount of hazardous and toxic materials used at the facility (specifically, items other than the hazardous waste being processed at the facility)? For example, will the least toxic paints and cleaning chemicals be used at the facility?

- Will the facility blend incoming hazardous wastes and auxiliary fuels to achieve the most complete and cleanest combustion? Will wastes be mixed to create a constant Btu burn and thus increase incineration efficiency?

- Does the facility have a preventive program to minimize the environmental effects from the generation of wastewater from the incineration process.

* Indicates an environmental impact reduction opportunity.

Residuals From the Incineration Process. The generation of ash usually results from the incineration of most hazardous wastes. Ash generation volumes are waste-dependent. The environmental concern with ash is the retention of heavy metals.

- Has consideration been given to techniques to reduce ash generation?
- Has the facility explored the economic feasibility of recovering precious metals from incinerator ash? *
- How will the ash be managed after generation? For example, are ash storage facilities lined and covered? *
- Will the ash be disposed of in a manner that limits potential environmental impacts? *

Other References

Freeman, Harry, Editor in Chief. 1989. *Standard Handbook of Hazardous Waste Treatment and Disposal.*

* Indicates an environmental impact reduction opportunity.

POLLUTION PREVENTION/ENVIRONMENTAL IMPACT REDUCTION CHECKLIST FOR HAZARDOUS WASTE STORAGE AND TREATMENT FACILITIES

How Can Hazardous Waste Storage and Treatment Facilities Affect the Environment?

The construction and operation of hazardous waste storage and treatment facilities can have a variety of effects on the environment. Construction impacts may include the destruction or alteration of wildlife habitats, wind and water erosion of soils, compaction of soils, and sedimentation of waterbodies. Operations may introduce chemical pollution to soils, groundwater, surface waters, or air resulting from spills, equipment failures, improper handling, or fires. Facility processes may consume energy and water and require the transportation of hazardous wastes to and from the facility. New roadways may need to be constructed depending on the selected site location, as waste facilities are often sited in remote or undeveloped areas.

Also see checklists on Hazardous Waste Incinerators, Waste Site Investigation and Cleanup Activities, Chemical Demilitarization, Base Closure and Reutilization, Solid Waste Landfills, Highways and Bridges, and Water Use.

What Questions Should Be Asked To Ensure That These Effects Are Minimized or Eliminated?

Facility Construction. The construction of hazardous waste storage and treatment facilities can have significant impacts on the environment, such as degradation of wildlife habitats, erosion and/or compaction of soils, dust and noise, and discharges of sediments to surface water. Pollution prevention techniques can help mitigate or reduce construction effects.

- Have attempts been made to avoid construction in environmentally sensitive areas? *
- Does the project minimize construction activities in the vicinity of rivers or streams that could be affected by runoff or the erosion of construction wastes?
- Does the project make use of existing roadway alignments (if possible) to reduce the amount of waste generated as a result of construction activities?
- Does the construction plan provide for erosion (wind and water) and sediment control during and after construction?
- Are the effects of soil compaction, which result from construction activities, minimized to prevent an increase in runoff?
- Does the construction plan include revegetation of areas disturbed by construction to minimize erosion and sedimentation?

Facility Operation. Operation of a hazardous waste storage and treatment facility could potentially introduce chemical or other pollution to soils, groundwater, surface waters, or air resulting from leaks, spills, equipment failures, or fires. These facilities usually are regulated under the Resource Conservation and Recovery Act (RCRA) and closely monitored and inspected by regulatory agencies. Facility processes may

* Indicates an environmental impact reduction opportunity.

consume energy and water resources and may require the transportation of hazardous wastes to and from the facility.

- Have measures been considered to promote the reduction and minimization of wastes generated prior to treatment and disposal?
- Has the containment system been designed to be compatible with the types of wastes to be treated and/or stored at the facility?
- Are spill control materials and equipment adequate and compatible with the hazardous wastes treated or stored at the facility?
- Have procedures been established to ensure that wastes are properly handled by facility personnel?
- Have facility personnel been trained in spill and emergency response procedures, as well as techniques to prevent pollution and minimize the generation of excess waste?
- Have adequate fire suppression equipment and materials been included in the spill control and emergency response measures to prevent the accidental release of hazardous constituents to the environment?
- Have emission control mechanisms been installed on treatment process equipment, ancillary equipment, and storage tanks to prevent releases? *

Facility Processes. Processes common to hazardous waste treatment and storage facilities consume water and energy resources, as well as generate wastes. Such processes as flocculation, neutralization, chemical reduction, oil-water separation, dewatering, and filter pressing can generate wastewater and sludge residues that may be hazardous.

- Will the facility employ processes to recycle and reuse wastes (or waste components, such as heavy metals) brought to the facility and wastes (or waste components) generated by the facility? *
- Have waste treatment processes been assessed to consider the amount of water and energy that will be consumed and how much waste (wastewater/sludge) will be generated?
- Have measures been considered to minimize the amount of treatment materials used and the amount of wastes generated from treatment processes?
- Will the facility apply pollution prevention techniques to secondary processes, such as facility maintenance, equipment, and vehicle maintenance, to minimize releases to the environment?
- Will the facility maintain the smallest possible inventory of shelf life sensitive hazardous materials to prevent the disposal of expired chemicals?

* Indicates an environmental impact reduction opportunity.

Transportation of Hazardous Wastes to and from the Facility. Hazardous wastes must be delivered to the facility for treatment and or storage, either by roadway (trucks) or rail (railcars). The transportation of hazardous wastes presents significant threats to the environment in the event of a crash or spill, which could cause a release of hazardous constituents to soils, surface waters, air, or groundwater. The transportation of wastes from regulated facilities usually is closely monitored by regulatory agencies.

- Has the facility been located to minimize transport requirements to and from the facility?
- Have measures been considered to minimize the potential for releases resulting from crashes or problems while transporting waste to or from the facility (such as choosing the safest and least populated routes of travel for the transportation of hazardous wastes)?
- For facilities with rail transport capabilities, has the facility rail spur been built with secondary containment to prevent releases during the transfer of wastes?

Other References

Lawrence Livermore National Laboratory. May 1988. Environmental Assessment for the Environmental Compliance and Cleanup Project.

Lawrence Livermore National Laboratory. July 1990. CERCLA Feasibility Study for the LLNL-Livermore Site (including a NEPA Environmental Assessment).

7360-01-J19-2026
Beverly L. Milkman,
Executive Director.
[FR Doc. 93-2187 Filed 1-28-93; 8:45 am]
BILLING CODE 6820-33-M

COUNCIL ON ENVIRONMENTAL QUALITY

National Environmental Policy Act; Pollution Prevention

AGENCY: Council on Environmental Quality, Executive Office of the President.

ACTION: Information only—memorandum to head of Federal departments and agencies regarding pollution prevention and the National Environmental Policy Act.

SUMMARY: This memorandum provides guidance to the federal agencies on incorporating pollution prevention principles, techniques, and mechanisms into their planning and decisionmaking processes and evaluating and reporting those efforts in documents prepared pursuant to the National Environmental Policy Act.

FOR FURTHER INFORMATION CONTACT: Lucinda Low Swartz, Deputy General Counsel, Council on Environmental Quality, 722 Jackson Place NW., Washington, DC 20503. Telephone: 202/395-5754.

SUPPLEMENTARY INFORMATION:

Memorandum

To: Heads of Federal Departments and Agencies
From: Michael R. Deland
Subject: Pollution Prevention and the National Environmental Policy Act
Date: January 12, 1993

Introduction

Although substantial improvements in environmental quality have been made in the last 20 years by focusing federal energies and federal dollars on pollution abatement and on cleaning up pollution once it has occurred, achieving similar improvements in the future will require that polluters and regulators focus more on their efforts on pollution prevention. For example, reducing non-point source pollution—such as runoff from agricultural lands and urban roadways—and addressing cross-media environmental problems—such as the solid waste disposal problem posed by the sludge created in the abatement of air and water pollution—may not be possible with "end-of-the-pipe" solutions.

Pollution prevention techniques seek to reduce the amount and/or toxicity of pollutants being generated. In addition, such techniques promote increased efficiency in the use of raw materials and in conversation of natural resources and can be a most cost-effective means of controlling pollution than does direct regulation. Many strategies have been developed and used to reduce pollution and protect resources, including using fewer toxic inputs, redesigning products, altering manufacturing and maintenance processes, and conserving energy.[1]

This memorandum seeks to encourage all federal departments and agencies, in furtherance of their responsibilities under the National Environmental Policy Act (NEPA), to incorporate pollution prevention principles, techniques, and mechanisms into their planning and decisionmaking processes and to evaluate and report those efforts, as appropriate, in documents prepared pursuant to NEPA.

Background

NEPA provides a longstanding umbrella for a renewed emphasis on pollution prevention in all federal activities. Indeed, NEPA's very purpose is "to promote efforts which will prevent or eliminate damage to the environment * * *." 42 U.S.C. 4321.

Section 101 of NEPA contains Congress' express recognition of "the profound impact of man's activity on the interrelations of all components of the natural environment" and declaration of the policy of the federal government "to use all practicable means and measures * * * to create and maintain conditions under which man and nature can exist in productive harmony * * *." 42 U.S.C. 4331(a). In order to carry out this environmental policy, Congress required all agencies of the federal government to act to preserve, protect, and enhance the environment. See 42 U.S.C. 4331(b).

Further, section 102 of NEPA requires the federal agencies to document the consideration of environmental values in their decisionmaking in "detailed statements" known as environmental impact statements (EIS). 42 U.S.C. 4332(2)(c)). As the United States Supreme Court has noted, the "sweeping policy goals announced in section 101 of NEPA are thus realized through a set of 'action-forcing' procedures that require that agencies take a 'hard look' at environmental consequences." *Robertson* v. *Methow Valley Citizens Council*, 490 U.S. 332 (1989).

The very premise of NEPA's policy goals, and the thrust for implementation of those goals in the federal government through the EIS process, is to avoid, minimize, or compensate for adverse environmental impacts before an action is taken. Virtually the entire structure of NEPA compliance has been designed by CEQ with the goal of preventing, eliminating, or minimizing environmental degradation. Thus, compliance with the goals and procedural requirements of NEPA, thoughtfully and fully implemented, can contribute to the reduction of pollution from federal projects, and from projects funded, licensed, or approved by federal agencies.

Defining Pollution Prevention

CEQ defines and uses the term "pollution prevention" broadly. In keeping with NEPA and the CEQ regulations implementing the procedural provisions of the statute, CEQ is not seeking to limit agency discretion in choosing a particular course of action, but rather is providing direction on the incorporation of pollution prevention considerations into agency planning and decisionmaking.

"Pollution prevention" as used in this guidance includes, and is not limited to, reducing or eliminating hazardous or other polluting inputs, which can contribute to both point and non-point source pollution; modifying manufacturing, maintenance, or other industrial practices; modifying product designs; recycling (especially in-process, closed loop recycling); preventing the disposal and transfer of pollution from one media to another; and increasing energy efficiency and conservation. Pollution prevention can be implemented at any stage—input, use or generation, and treatment—and may involve any technique—process modification, waste stream segregation, inventory control, good housekeeping or best management practices, employee training, recycling, and substitution. Indeed, any reasonable mechanism which successfully avoids, prevents, or reduces pollutant discharges or emissions other than by the traditional method of treating pollution at the discharge end of a pipe or a stack should, for purposes of this guidance, be considered pollution prevention.[2]

[1] For a discussion of such strategies and activities, see the Council on Environmental Quality's 20th *Environmental Quality* report, at 215-257 (1989); 21st *Environmental Quality* report, at 79-133 (1990); and 22nd *Environmental Quality* report, at 131-158 (1991).

[2] It should be noted that EPA, in accordance with the Pollution Prevention Act of 1990 (Pub. L. 101-508, 6601 *et seq.*), uses a different definition, one which describes pollution prevention in terms of source reduction and other practices which reduce or eliminate the creation of pollutants through increased efficiency in the use of raw materials.

Federal Agency Responsibilities

Pursuant to the policy goals found in NEPA section 101 and the procedural requirements found in NEPA section 102 and in the CEQ regulations, the federal departments and agencies should take every opportunity to include pollution prevention considerations in the early planning and decisionmaking processes for their actions, and, where appropriate, should document those considerations in any EISs or environmental assessments (EA) prepared for those actions.[3] In this context, federal actions encompass policies and projects initiated by a federal agency itself, as well as activities initiated by a non-federal entity which need federal funding or approval. Federal agencies are encouraged to consult EPA's Pollution Prevention Information Clearinghouse which can serve as a source of innovative ideas for reducing pollution.

1. Federal Policies, Projects, and Procurements

The federal government develops and implements a wide variety of policies, legislation, rules, and regulations; designs, constructs, and operates its own facilities; owns and manages millions of acres of public lands; and has a substantial role as a purchaser and consumer of commercial goods and services—all of these activities provide tremendous opportunities for pollution prevention which the federal agencies should grasp to the fullest extent practicable. Indeed, some agencies have already begun their own creative pollution prevention initiatives:

Land Management

The United States Forest Service has instituted best management practices on several national forests. These practices include leaving slash and downed logs in harvest units, maintaining wide buffer zones around streams, and encouraging biological diversity by mimicking historic burn patterns and other natural processes in timber sale design and layout. The beneficial effects have been a reduction in erosion, creation of fish and wildlife habitat, and the elimination of the need to burn debris after logging—in other words, a reduction of air and water pollution.

The National Park Service and the Bureau of Reclamation have implemented integrated pest management programs which minimize or eliminate the use of pesticides. In addition, in some parks storm water runoffs from parking lots have been eliminated by replacing asphalt with the use of a "geo-block" system (interlocking concrete blocks with openings for grass plantings). The lot is mowed as a lawn but has the structural strength to support vehicles.

The Tennessee Valley Authority (TVA) has developed a transmission line right-of-way maintenance program which requires buffer zones around sensitive areas for herbicide applications and use of herbicides which have soil retention properties which allow less frequent treatment and better control. TVA is also testing whole tree chipping to clear rights-of-way in a single pass application, allowing for construction vehicle access but reducing the need for access roads with the nonpoint source pollution associated with leveling, drainage, or compaction. In addition, TVA is using more steel transmission line poles to replace traditional wooden poles which have been treated with chemicals.

For construction projects it undertakes, the Department of Veterans Affairs discusses in NEPA documents and implements pollution prevention measures such as oil separation in storm water drainage of parking structures, soil erosion and sedimentation controls, and the use of recycled asphalt.

Office Programs

Many agencies, including the Department of Agriculture's Economic Research Service and Soil Conservation Service, Department of the Army, Department of the Interior, Consumer Product Safety Commission, and Tennessee Valley Authority, have implemented pollution prevention initiatives in their daily office activities. These initiatives embrace recycling programs covering items such as paper products (e.g., white paper, newsprint, cardboard), aluminum, waste oil, batteries, tires, and scrap metal; procurement and use of "environmentally safe" products and products with recycled material content (e.g., batteries, tires, cement mixed with fly ash and recycled oil, plastic picnic tables); purchase and use of alternative-fueled vehicles in agency fleets; and encouragement of carpooling with employee education programs and locator assistance.

In planning the relocation of its headquarters, the Consumer Product Safety Commission (CPSC) is considering only buildings located within walking distance of the subway system as possible sites. By conveniently siting its headquarters facility, CPSC expects to triple the number of employees relying on public transportation for commuting and to substantially increase the number of agency visitors using public transportation for attendance at agency meetings or events.

Waste Reduction

The Department of Energy (DOE) has instituted an aggressive waste minimization program which has produced substantial results. DOE's nuclear facilities have reduced the sizes of radiological control areas in order to reduce low-level radioactive waste. Other facilities have set up trash segregation programs which reduce solid waste and allow valuable material to be sold and recycled. DOE facilities also are replacing solvent-based cleaners containing hazardous materials with less or non-toxic materials.

The Department of the Army has a similar waste reduction program and is vigorously pursuing source reduction changes to industrial processes to eliminate toxic chemical use that ultimately generates hazardous wastes. The Army's program includes material substitution techniques, process alternative applications, and modifications. For example, in an EIS and subsequent record of decision for proposed actions on Kwajalein Atoll, the Army committed to segregating waste oils from the Kwajalein power plant which will prevent contamination of large quantities of used engine oil with salt water. Oil recycling equipment will be installed on power plant generators allowing reuse of the oil.

The Federal Aviation Administration (FAA) has also implemented a waste minimization program designed to eliminate or reduce the volume and toxicity of wastes generated by the National Airspace System (NAS). This program includes chemical life extenders and recycling systems to reduce the quantity and toxicity of wastes generated at FAA facilities and providing chlorofluorocarbon (CFC) recycling equipment to [illegible] in

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energy, water, or other resources or the protection of natural resources by conservation. "Source reduction" is defined as any practice which reduces the amount of any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment prior to recycling, treatment, or disposal and which reduces the hazards to public health and the environment associated with the release of such substances, pollutants, or contaminants.

[3] Under section 309 of the Clean Air Act (42 U.S.C. 7609), EPA is directed to review and comment on all major federal actions, including construction projects, proposed legislation, and proposed regulations. In addition, the Pollution Prevention Act of 1990 directs EPA to encourage source reduction practices in other federal agencies. EPA is using this authority to identify opportunities for pollution prevention in the federal agencies and to suggest how pollution prevention concepts can be addressed by the agencies in their EISs and incorporated into the wide range of government activities.

the FAA to that CFCs used in industrial chillers, refrigeration equipment, and air conditioning units can be recaptured, recycled, and reused.

Inventory Control

DOS is improving procurement and inventory control of chemicals and control of materials entering radiologically controlled areas. This can minimize or prevent non-radioactive waste from entering a radioactive waste stream, thus reducing the amount of low-level waste needing disposal.

In two laboratories operated by the Consumer Product Safety Commission, pollution prevention is being practiced by limiting quantities of potentially hazardous materials on hand.

The Tennessee Valley Authority's nuclear program has established a chemical traffic control program to control the use of disposal of hazardous materials. As a result of the program, hazardous materials are being replaced by less hazardous alternatives and use of hazardous chemicals and products has been reduced by 66%.

2. Federal Approvals

In addition to initiating their own policies and projects, federal agencies provide funding in the form of loans, contracts, and grants and/or issue licenses, permits, and other approvals for projects initiated by private parties and state and local government agencies. As with their own projects and consistent with their statutory authorities, federal agencies could urge private applicants to include pollution prevention considerations into the siting, design, construction, and operation of privately owned and operated projects. These considerations could then be included in the NEPA documentation prepared for the federally-funded or federally-approved project, and any pollution prevention commitments made by the applicant would be monitored and enforced by the agency. Thus, using their existing regulatory authority, federal agencies can effectively promote pollution prevention throughout the private sector. Below are some existing examples of incorporation of pollution prevention into federal approvals:

The Nuclear Regulatory Commission has required licensees to perform mitigation measures during nuclear power plant construction. These measures include controlling drainage by means of ditches, berms, and sedimentation basins; prompt revegetation to control erosion; and stockpiling and reusing topsoil. Similarly, mitigation measures required during the construction of transmission facilities include the removal of vegetation by cutting and trimming rather than bulldozing and avoiding multiple stream crossings, wet areas, and areas with steep slopes and highly erodible soils. The mitigation conditions in licenses serve to prevent pollution from soil erosion and to minimize waste from construction.

In the implementation of its programs, the Department of Agriculture encourages farmers to follow management practices designed to reduce the environmental impacts of farming. Such practices include using biological pest controls and integrated pest management to reduce the toxicity and application of pesticides, controlling nutrient loadings by installing buffer strips around streams and replacing inorganic fertilizers with animal manures, and reducing soil erosion through modified tillage and irrigation practices. Further, encouraging the construction of structures such as waste storage pits, terraces, irrigation water conveyances or pipelines, and lined or grassed waterways reduces runoff and percolation of chemicals into the groundwater.

The Department of Transportation's Maritime Administration is conducting research on a Shipboard Piloting Expert System. If installed on vessels, this system would provide a navigation and pilotage assistance capability which would instantly provide warnings to a ship master or pilot of pending hazards and recommended changes in vessel heading to circumvent the hazard. The system could prevent tanker collisions or groundings which cause catastrophic releases of pollutants.

The Department of the Interior's Minerals Management Service (MMS) prepares EISs which examine the effects of potential Outer Continental Shelf (OCS) oil exploration on the environment and the various mitigation measures that may be needed to minimize such effects. Some pollution prevention measures which are analyzed in these EISs and which have been adopted for specific lease sales include measures designed to minimize the effects of drilling fluids discharge, waste disposal, oil spills, and air emissions. For example, MMS requires OCS operations to use curbs, gutters, drip pans, and drains on drilling platforms and rig decks to collect contaminants such as oil which may be recycled.

Incorporating Pollution Prevention Into NEPA Documents

NEPA and the CEQ regulations establish a mechanism for building environmental considerations into federal decisionmaking. Specifically, the regulations require federal agencies to "integrate the NEPA process with other planning at the earliest possible time to insure that planning and decisions reflect environmental values, to avoid delays later in the process, and to head off potential conflicts." 40 CFR 1501.2. This mechanism can be used to incorporate pollution prevention in the early planning stages of a proposal.

In addition, prior to preparation of an EIS, the federal agency proposing the action is required to conduct a scoping process during which the public and other federal agencies are able to participate in discussions concerning the scope of issues to be addressed in the EIS. See 40 CFR 1501.7. Including pollution prevention as an issue in the scoping process would encourage those outside the federal agency to provide insights into pollution prevention technologies which might be available for use in connection with the proposal or its possible alternatives.

Pollution prevention should also be an important component of mitigation of the adverse impacts of a federal action. To the extent practicable, pollution prevention considerations should be included in the proposed action and in the reasonable alternatives to the proposal, and should be addressed in the environmental consequences section of the EIS. See 40 CFR 1502.14(f), 1502.16(h), and 1508.20.

Finally, when an agency reaches a decision on an action for which an EIS was completed, a public record of decision must be prepared which provides information on the alternatives considered and the factors weighed in the decisionmaking process. Specifically, the agency must state whether all practicable means to avoid or minimize environmental harm were adopted, and if not, why they were not. A monitoring and enforcement program must be adopted if appropriate for mitigation. See 40 CFR 1505.2(c). These requirements for the record of decision and for monitoring and enforcement could be an effective means to inform the public of the extent to which pollution prevention is included in a decision and to outline how pollution prevention measures will be implemented.

A discussion of pollution prevention may also be appropriate in an EA. While an EA is designed to be a brief discussion of the environmental impacts of a particular proposal, the preparer could also include suitable pollution prevention techniques as a means to lessen any adverse impacts identified.

See 40 CFR 1508.9. Pollution prevention measures which contribute to an agency's finding of no significant impact must be carried out by the agency or made part of a permit or funding determination.

Conclusion

Pollution prevention can provide both environmental and economic benefits, and CEQ encourages federal agencies to consider pollution prevention principles in their planning and decisionmaking processes in accordance with the policy goals of NEPA Section 101 and to include such considerations in documents prepared pursuant to NEPA section 102, as appropriate.[4] In its role as a regulator, a policymaker, a manager of federal lands, a grantor of federal funds, a consumer, and an operator of federal facilities which can create pollution, the federal government is in a position to help lead the nation's efforts to prevent pollution before it is created. The federal agencies should act now to develop and incorporate pollution prevention considerations in the full range of their activities.

David B. Struhs,

Chief of Staff.

[FR Doc. 93-2104 Filed 1-28-93; 8:45 am]

BILLING CODE 3125-01-M

DEPARTMENT OF DEFENSE

GENERAL SERVICES ADMINISTRATION

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

[OMB Control No. 9000-0058]

Clearance Request for Schedules for Construction Contracts

AGENCIES: Department of Defense (DOD), General Services Administration (GSA), and National Aeronautics and Space Administration (NASA).

ACTION: Notice of request for an extension to an existing OMB clearance (9000-0058).

SUMMARY: Under the provisions of the Paperwork Reduction Act of 1980 (44 U.S.C. 35), the Federal Acquisition Regulation (FAR) Secretariat has submitted to the Office of Management and Budget (OMB) a request to review and approve an extension of a currently approved information collection requirement concerning Schedules for Construction Contracts.

FOR FURTHER INFORMATION CONTACT: Beverly Fayson, Office of Federal Acquisition Policy, GSA, (202) 501-4755.

SUPPLEMENTARY INFORMATION:

A. Purpose

Federal construction contractors may be required to submit schedules, in the form of a progress chart, showing the order in which the contractor proposes to perform the work. Actual progress shall be entered on the chart as directed by the contracting officer. This information is used to monitor progress under a Federal construction contract when other management approaches for ensuring adequate progress are not used.

B. Annual Reporting Burden

The annual reporting burden is estimated as follows: Respondents, 2,500; responses per respondent, 2; total annual responses, 5,200; preparation hours per response, 1; and total response burden hours, 5,200.

OBTAINING COPIES OF PROPOSALS: Requester may obtain copies of OMB applications or justifications from the General Services Administration, FAR Secretariat (VRS), room 4037, Washington, DC 20405, telephone (202) 501-4755. Please cite OMB Control No. 9000-0058, Schedules for Construction Contracts, in all correspondence.

Dated: January 21, 1993.

Beverly Fayson,

FAR Secretariat.

[FR Doc. 93-2148 Filed 1-28-93; 8:45 am]

BILLING CODE 6820-34-M

Department of the Air Force

USAF Scientific Advisory Board; Meeting

The Architecture & Assessment Panel of the USAF Scientific Advisory Board's Committee on Options for Theater Air Defense will meet on 24 February 1993, at Headquarters ACC, Langley AFB, VA from 8 a.m. to 5 p.m.

The purpose of this meeting will be to gather information, receive briefings on issues related to theater air defense. The meeting will be closed to the public in accordance with section 552b(c) of title 5, United States Code, specifically subparagraphs (1) and (4) thereof.

For further information, contact the Scientific Advisory Board Secretariat at (703) 697-4811.

Patsy J. Conner,

Air Force Federal Register, Liaison Officer.

[FR Doc. 93-2199 Filed 1-28-93; 8:45 am]

BILLING CODE 3910-01-M

DEPARTMENT OF EDUCATION

Indian Education National Advisory Council; Meeting

AGENCY: National Advisory Council on Indian Education, Education.

ACTION: Notice of open meeting.

SUMMARY: This notice sets forth the schedule and proposed agenda of a forthcoming meeting of the Executive Committee of the National Advisory Council on Indian Education. This notice also describes the functions of the Council. Notice of this meeting is required under section 10(a)(2) of the Federal Advisory Committee Act.

DATES AND TIMES: February 22-23, 1993, from 8:30 a.m. to 5 p.m. each day.

ADDRESS: The meeting will be held at the Sheraton Inn Tampa, 7401 East Hillsboro Avenue, Tampa, Florida, 33610, 813/626-0999.

FOR FURTHER INFORMATION CONTACT: Robert K. Chiago, Executive Director, National Advisory Council on Indian Education, 330 C Street SW., room 4072, Switzer Building, Washington, DC 20202-7556. Telephone: 202/205-8353.

SUPPLEMENTARY INFORMATION: The National Advisory Council on Indian Education is established under section 442 of the Indian Education Act of 1988 (25 U.S.C. 2642). The Council is established to, among other things, assist the Secretary of Education in carrying out responsibilities under the Indian Education Act of 1988 (Part C, Title V, Pub. L. 100-297) and to advise Congress and the Secretary of Education with regard to federal education programs in which Indian children or adults participate or from which they can benefit.

The meeting is open to the public. The agenda of the Executive Committee of the National Advisory Council on Indian Education includes finalizing recommendations for consideration by the Department of Education and the Congress relative to the reauthorization of the Office of Elementary and Secondary Education (OESE) Act. The current Act is due to expire on October 1, 1993. Additionally the Executive Committee will finalize dates and locations for a series of hearings to be held in conjunction with the

[4] As a guidance document, this memorandum does not impose any new legal requirements on the agencies and does not require any changes to be made to any existing agency environmental regulations.

Air Pollution Engineering Manual

AIR & WASTE MANAGEMENT ASSOCIATION

SINCE 1907

Edited by
Anthony J. Buonicore
Wayne T. Davis

VNR VAN NOSTRAND REINHOLD
New York

remove ferrous metals, and, in some cases, by air classification to remove ash. This type of fuel is often burned in a spreader stoker combustor or is suspension fired over a stoker.

The RDF may be further processed to produce a densified fuel by pelletizing, a recovery-prepared RDF in which a larger portion of metals and glass is removed, or a fluff RDF for cofiring with coal in suspension-fired combustors.

The RDF combustors range in size from approximately 400 to 1000 tons/day in capacity. Because of the nature of the fuel and firing, particulate matter carryover to the air-pollution control system is generally much higher than for a mass burn combustor.

EMISSIONS CHARACTERIZATION

Refuse incineration has the potential of emitting a wide range of pollutants to the environment. These potential emissions arise from compounds present in the refuse stream, are formed as a part of the normal combustion process, or are formed as a result of incomplete combustion. Table 3 lists principal potential municipal-waste-combustion (MWC) emissions and the prime source for each.

Particulate matter consists primarily of noncombustible inorganic material entrained in the flue gas, and it typically ranges in size from less than 1 μm to about 50 μm. The uncontrolled particulate matter emission rate varies substantially for the different types of MWCs. Modular incinerators produce the lowest levels of uncontrolled emissions, with RDF-fired units having the highest.

Table 4 presents emission factors for a number of pollutants for modular, mass burn, and RDF-fired combustors. The acid gases hydrogen chloride (HCl), sulfur dioxide (SO_2), and hydrogen fluoride (HF) are formed during the combustion of chloride-, sulfur- and, fluoride-containing compounds found in the waste stream. A small fraction (approximately 1% to 5%) of the SO_2 in the flue gas is oxidized to sulfur trioxide (SO_3). These gases, in the presence of water or water vapor, react to form hydrochloric, sulfurous, hydrofluoric, or sulfuric acid. Nitrogen oxides are found predominantly in the form NO and are formed primarily through the conversion of fuel-bound nitrogen, although some nitrogen in the combustion air may also be converted. Carbon monoxide is formed through the incomplete combustion of organic compounds in the waste stream and is used as an indicator of combustion conditions.

TABLE 3. Principal Municipal-Waste-Combustion Emissions and Sources

Pollutant	Principal Source
Particulate matter	Ash in waste stream
Acid gases	
HCl	Chlorinated plastic in waste stream
SO_2	Sulfur compounds in waste stream
SO_3	Oxidation of SO_2 in flue gas
HF	Fluorocarbons in waste stream
NO_x	Air and fuel nitrogen conversion
CO	Incomplete combustion
Heavy metals (arsenic, cadmium, lead, mercury)	Metal compounds in waste stream
Organic compounds (dioxins, furans)	Products of incomplete combustion or contained in waste stream

TABLE 4. Emission Factors for Municipal Waste Combustion *(All Values Are Pounds per Ton, Uncontrolled)*

	Type of Incinerator		
	Modular Starved Air	Mass Burn	Refuse-Derived Fuel
Particulate matter			
PM_{10}	1.4	14	44
Total	0.12	0.18	0.13
Lead	0.12	0.18	0.13
SO_2	1.7	1.7	1.7
NO_x	4.4	3.6	5.0
CO	3.4	2.2	3.6

Source: Reference 6.

Heavy-metal compounds of concern emitted from MWCs include the oxides and chlorides of arsenic, cadmium, lead, and mercury. These compounds are formed from the combustion of heavy-metal–containing components of the waste stream, such as batteries, plastics, paper products, and metal alloys. A number of these compounds have boiling points or sublime at temperatures below the 1800°F typical of incineration systems and are thus vaporized into the flue gas. As the flue gas temperature cools, they tend to condense out and are concentrated on fine particulate matter in the flue gas. For the compounds of mercury and lead, a significant fraction may remain in the vapor state at typical incinerator-exit flue gas temperatures.

Organic emissions are a result of incomplete combustion of compounds found in the waste stream. The prime organic compounds of concern are PCDD and PCDF. These emissions can arise from incomplete thermal destruction of PCDD- and PCDF-containing materials in the waste stream, from incomplete thermal destruction of other organic compounds that produce PCDD/PCDF precursors, and through chemical reactions that occur at relatively low temperatures downstream of the combustor.

As shown in Table 4, uncontrolled particulate emissions and the fine particulate fractions vary widely for the three major types of combustors. These variations are a function of the turbulence in the combustion zone, the flue gas velocity through the combustor, and the fineness of the fired fuel. The RDF-fired boilers have substantially higher uncontrolled total and fine particulate fractions, reflecting these conditions. The variations of other uncontrolled pol-

TABLE 5. Typical Refuse Incinerator Uncontrolled and Controlled Emissions

Pollutant	Uncontrolled Emissions	Controlled Emissions	Percent Reduction
Particulate matter, gr/dscf	0.5–4.0	0.002–0.015	99.5+
Acid gases, ppmdv			
HCl	400–100	10–50	90–99+
SO_2	150–600	5–50	65–90+
HF	10–0	1–2	90–95+
NO_x	150–300	60–180	30–65[a]
Heavy metals, mg/nm³			
Arsenic	<0.1–1	<0.01–0.1	90–99–
Cadmium	1–5	<0.01–0.5	90–99+
Lead	20–100	<0.1–1	90–99+
Mercury	<0.1–1	<0.1–0.7	10–90+
Total PCDD/PCDF, ng/nm³	20–500	<1–10	80–99

Note: Reference conditions: dry gas at 12% CO_2.
[a]Reduction associated with noncatalytic reduction.

lutant emissions rates are much less for the various types of combustors and are more a function of waste-stream composition and combustor operating conditions.

Table 5 shows typical uncontrolled and controlled emissions for a number of pollutants of concern from refuse incineration. Percent reduction ranges typical of levels being achieved utilizing the best available control technologies are also shown for each pollutant.

Modern refuse incinerators are achieving very low emissions as a result of the proper application and operation of available air-pollution control systems. The average incinerator emission levels for all pollutants has been decreased substantially over the past five years as more modern installations have been brought into service.

AIR-POLLUTION CONTROL SYSTEMS

Air-pollution control systems for refuse incinerators can be classified by either the pollutant they control or their operating principles. Table 6 presents a list of the common pollutants of concern found in refuse incinerator flue gas and the methods used to control their emissions.

Often more than one control device will be used in series to control a number of pollutants. The most common examples of this are the use of an electrostatic precipitator followed by a wet scrubber or a spray dryer absorption system including an electrostatic precipitator or fabric filter.

Carbon-Monoxide Controls

Carbon-monoxide emissions are controlled by employing "good combustion practices." These practices include operational and incinerator design elements to control the amount and distribution of excess air in the flue gas to ensure that there is enough oxygen present for complete combustion. The design of modern efficient combustors is such that there is adequate turbulence in the flue gas to ensure good mixing, a high-temperature zone (greater than 1800°F) to complete burnout, and a long enough residence time at the high temperature (one to two seconds).

The feed to the combustor is controlled to minimize fuel spikes that lead to fuel-rich firing. The combustor is equipped with adequate instrumentation and combustion air controls to adjust for rapid changes in fuel conditions.

Good combustion practices also limit PCDD/PCDF emissions exiting the incinerator. This is accomplished by maintaining firing conditions that destroy PCDD/PCDFs

TABLE 6. Incinerator Emissions and Controls

Pollutant	Control Device
Carbon monoxide (CO)	Good combustion practices
Nitrogen oxides (NO_x)	Staged combustion selective noncatalytic reduction (SNCR)
Particulate matter	Electrostatic precipitator (ESP)
	Pulse jet fabric filter (PJF)
	Reverse air fabric filter (RAF)
	Wet scrubber (WS)
Acid gases (HCl, SO_2, SO_3, HF)	Dry sorbent injection (DSI)
	Spray dryer absorption (SDA)
	Wet scrubbing
Heavy metals	ESP, PJF, RAF, SDA, WS
PCDD/PCDF	Good combustion practices
	ESP, PJF, RAF, SDA, WS

found in the fuel and by destroying PCDD/PCDF precursors that may be formed from the combustion of other chlorinated organic compounds.

Nitrogen Oxide Controls

Nitrogen oxide emissions are controlled by limiting their formation in the incinerator using staged combustion or applying selective noncatalytic reduction to reduce the NO_x content in the flue gas. Staged combustion is accomplished by splitting up the introduction of combustion air into the combustor so that areas of fuel-rich and fuel-lean firing are established. This will lower the peak flame temperatures and limit the amount of oxygen available to react with nitrogen in the air at the peak temperature. The introduction of additional secondary air downstream in the combustor will ensure complete combustion and minimize CO formation. Generally, staged combustion is effective in reducing NO_x formation due to air–nitrogen conversion, but is not very effective for conversion of fuel-bound nitrogen to NO_x.

The NO_x present in the flue gas can be reduced by employing either a selective catalytic or noncatalytic reduction process. The selective catalytic reduction (SCR) process utilizes ammonia injection upstream of a catalytic reactor, at about 600–650°F, to reduce NO_x to nitrogen. Selective catalytic reduction has been applied to a wide range of combustion sources where 80–85% NO_x reduction has been demonstrated. However, because of the nature of the compounds found in refuse incinerator flue gas, the successful application of SCR requires installation downstream of the acid-gas and particulate control systems with subsequent reheat to the reactor operating temperature. Because of these constraints, only limited SCR applications to refuse incinerator flue gases have been attempted.

Selective noncatalytic reduction (SNCR) reduces flue gas NO_x through a reaction with ammonia in a temperature range of 1700–1900°F. The ammonia may be supplied as anhydrous ammonia, aqueous ammonia, or urea. At flue gas temperatures above 1900°F, the oxidation of ammonia to NO_x increases and SNCR can actually result in an increase in overall NO_x. At temperatures below about 1700°F, NO_x reduction falls off and ammonia breakthrough increases, leading to the potential for a visible ammonium-chloride plume.

Ammonia injection, also known as thermal De-NO_x, has been applied to many different combustion sources, including mass burn refuse incinerators. Reductions in NO_x levels of up to 65% have been demonstrated at an ammonia-to-NO_x ratio of about two, with ammonia breakthrough as low as 5 ppm. This corresponds to a NO_x emission level of approximately 60 ppm. Thermal De-NO_x operates most efficiently under steady-state operating conditions. Changes in fuel feed rate, excess air rate, or incinerator load can significantly change flue gas conditions at the ammonia-injection point, leading to a major change in control efficiency.

Urea injection has been demonstrated full scale on refuse combustors in the United States and Europe. Urea injection offers the advantage of not requiring a hazardous material for operation. At the injection temperatures employed (1600–1900°F), the urea quickly breaks down to form the active reagent. In some cases, reaction enhancers are added to the urea to expand the effective temperature window to as low as 1200°F. Tests with urea injection have achieved greater than 65% NO_x reduction with very low (approximately 5 ppm) ammonia slip.[7]

Particulate Matter Controls

Particulate emissions are primarily controlled by electrostatic precipitators (ESPs) or fabric filters, although wet scrubbers are sometimes used on small incinerators or in series with ESPs for additional control. The ESPs are installed either alone, to control particulate emissions, or after a spray dryer, as a part of an acid-gas cleaning system. Fabric filters are typically installed downstream of a quench tower or spray dryer, where the conditions of increased flue gas moisture and lowered temperature aid in protecting filter bags from hot embers.

Electrostatic Precipitators

Electrostatic precipitators collect particulate matter by introducing a strong electrical field in the flue gas, which imparts a charge to the particulates present. These charged particles are then collected on large plates, which have an opposite charge applied to them. The collected particulate is periodically removed by rapping the collection plates. The agglomerated particles fall to a hopper, where they are removed. Key design parameters for ESPs include particulate composition, density, and resistivity; flue gas temperature and moisture content; inlet particulate loading and collection efficiency; specific collection area (SCA = square feet of collecting surface per 1000 acfm of flue gas) and number of fields; flue gas velocity and collector plate spacing; rapping frequency and intensity; and transformer rectifier power levels.

Table 7 presents sizing parameters typical for ESPs applied for incinerator particulate emissions control. The ranges in parameters shown reflect straight ESP particulate control applications and ESP applications as part of an acid-gas cleaning system. Although the inlet particulate loading to the ESP is much higher as part of an acid-gas cleaning system, the number of fields and specific collecting areas required to achieve a similar outlet emission do not change significantly. This is due to lower ash resistivity values and increased flue gas moisture contents, which improve the ESP's performance. Incinerators that have had spray dryers retrofitted in front of existing ESPs have been able, in most cases, to maintain the same level of particulate emissions (e.g., 0.01 to 0.015 gr/dscf at 12% CO_2).

TABLE 7. Electrostatic Precipitator—Design Parameters

Particulate loading, gr/acf		0.5–9
Required efficiency, %		98–99.9
Number of fields		3–4
SCA, ft²/1000 acfm		400–550
Average secondary voltage, kV		35–55
Average secondary current, mA/1000ft²		30–50
Gas velocity, ft/s		3.0–3.5
	Particulate	Acid-Gas Control
Flue gas temperature, °F	350–450	230–300
Flue gas moisture, % vol.	8–16	12–20
Ash resistivity, ohm-cm	10^{9}–10^{12}	10^{8}–10^{9}

Source: Reference 8.

Weighted-wire, rigid-frame, and rigid-electrode types of precipitators are employed for incinerator applications, however, rigid-frame and rigid-electrode types predominate. This is related to the corrosive gas conditions and sticky nature of the fly ash being collected. Electrode failures associated with rigid-frame and rigid-electrode systems are less frequent than for weighted wire. This is especially true where higher rapping forces are needed to dislodge the sticky fly ash. For rigid-frame systems, high-alloy (e.g., Incoloy 825) spring-wound electrodes are also used to minimize electrode corrosion problems.

The insulator compartment ventilation system is designed to minimize the effects of the corrosive nature of the flue gas and fly-ash stickiness. A pressurized ventilation system employing heated air is recommended to maintain clean insulators and reduce potential electrical tracking problems.

Fabric Filters

Both the reverse-air and pulse-jet types of fabric filters are used for particulate emission control on refuse incinerators. Each type offers advantages that should be evaluated on a site-specific basis. Both types are capable of achieving particulate emissions of the order of 0.01–0.015 gr/dscf at 12% CO_2 or lower. Table 8 presents design parameters typical of incinerator fabric filter applications.

The temperature ranges shown represent operation after both a dry quench chamber (350–450°F) and a spray dryer (230–300°F). For these temperature ranges, woven fiberglass is typically used as the bag material, although Nomex fabric is also used. A 10% Teflon B coating is the most commonly specified, with acid-resistant coating also used.

The bag sizes differ substantially for the two types of filters. Reverse-air filters generally employ bags 8 inches in diameter by up to 24 feet long. Pulse-jet bags are usually 6 inches in diameter by 12 to 14 feet long. However, some vendors offer a low-pressure pulse filter with bags up to 24 feet long. The biggest differences in operating parameters

TABLE 8. Fabric Filter—Design Parameters

	Reverse Air	Pulse Jet
Operating temperature, °F	230–450	
Type of fabric	Woven fiberglass	
Fabric coating	10% Teflon B or acid Resistant	
Fabric weight, oz/yd²	9.5	16 or 22
Bag diameter, inches	8	6
Net air-to-cloth ratio	1.5–2.0:1	3.5–4.0:1
Minimum compartments	6	4
Overall pressure drop, in. w.g.	4–6	8–10
Estimated Bag Life, Years	3–4	1.5–2

are in the air-to-cloth ratio and system pressure drop. Pulse-jet filters generally operate at double the air-to-cloth ratio that reverse-air filters do and at nearly double the pressure drop. This results in more frequent bag cleaning and a substantially shorter bag life.

The main advantages of a pulse-jet fabric filter are a lower capital cost and a smaller footprint. However, because of the shorter bag life and higher pressure drop, the pulse-jet filter generally has a higher total evaluated cost for plants exceeding 15 years of life. A reverse-air filter typically has lower particulate emissions when compared with a pulse-jet filter.

The majority of fabric filter applications are as part of an acid-gas cleaning system and incorporate specific design features for operating after a spray dryer. The flue gas, after a spray dryer has been cooled (240–300°F), has a high moisture content (12–20%), is closer to the dew point (80–160°F), and may have a higher particulate loading. These flue gas conditions can lead to severe corrosion and baghouse plugging.[8]

Corrosion control is accomplished by insulation design, control of air in-leakage into the filter, hopper heating, and, in some instances, coating of the fabric filter internals with an acid-resistant material. Insulation specifications usually require a minimum of 4 inches with double lapping on side panels and with the insulation extending into the hopper crotch areas. Air in-leakage is controlled by good quality control during erection and by minimizing the number of openings into the filter. Hopper heating is used to maintain the hopper skin temperature at the flue gas temperature to prevent cold spots and to aid in maintaining product flowability.

As part of an acid-gas cleaning system, the fabric filter also acts as a reactor to aid in acid-gas absorption, especially for sulfur dioxide. Sulfur dioxide in the flue gas is absorbed by alkaline material in the filter cake on the bags. Therefore, when a bag is freshly cleaned, SO_2 absorption decreases. In order to minimize this impact on overall absorption, the number of bags being cleaned simultaneously should be minimized. This can be accomplished by increasing the number of compartments. A minimum of six

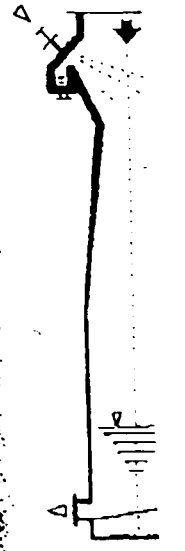

FIGURE 4. S
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Wet Scrubber

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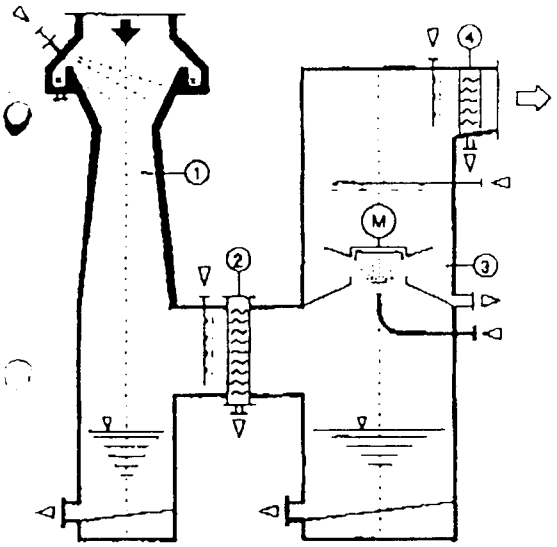

1 saturator venturi/1st scrubbing stage
2 lamellar droplet separator
3 radial-flow scrubber/2nd scrubbing stage
4 lamellar droplet separator

FIGURE 4. Saturator Venturi with Radial-Flow Scrubber (Courtesy Lurgi Corp. Reprinted with permission.)

compartments is generally specified for acid-gas cleaning systems.

Wet Scrubbers

Wet scrubbers are typically employed as part of a two-stage flue gas cleaning system downstream of an ESP. They function as a particulate-removal polishing stage and as an acid-gas absorber. A venturi scrubber followed by a packed or tray tower is commonly used, however, other types of wet scrubbers, such as charged droplet scrubbers, are also used. Figure 4 shows a typical wet scrubber design used for both particulate and acid-gas control.

Typically, water is recycled in the venturi stage to achieve particulate removal. Hydrogen chloride present in the gas would also be removed in this stage. Additional particulate and acid-gas removal can take place in the second scrubbing stage. Absorption of SO_2 is enhanced in this stage by maintaining a recirculating solution pH in the range of about 6.5 to 9 through addition of caustic (sodium hydroxide). A blowdown stream is maintained for each stage to control the recirculating solution solids content. Typical design parameters for refuse-incinerator wet scrubber applications are presented in Table 9.

The venturi section is subjected to severe corrosive conditions due to the low circulating solution pH, the high hydrochloric-acid concentration, and the presence of small amounts of sulfuric, nitric, and hydrofluoric acids. The scrubber inlet temperature may be as high as 450°F, which precludes the use of corrosion-resistant resins, therefore,

TABLE 9. Wet Scrubber—Design Parameters

	Venturi Stage	Absorber Stage
Gas velocity, ft/s	90–150	6–10
Pressure drop, in. w.c.	40–70	4–8
L/G, Gal/Kacfm	10–20	20–40
Scrubbing medium	Water	Caustic
Solution pH	< 1–2	6.5–9
Materials of construction	High-alloy steel (eg., Inconel, Hastelloy)	FRP Lined carbon steel

high-alloy steels are typically specified as the materials of construction. In cases where the inlet flue gas contains high levels of particulate matter, the venturi section may be lined with a corrosion-resistant material such as bricks. The venturi section typically is equipped with a set of emergency quench nozzles to ensure that the flue gas temperature leaving the venturi is maintained at an acceptable level for the absorber-stage materials of construction.

The absorber stage may be a packed tower, a tray tower, or a radial flow tower, as shown in Figure 4. The materials of construction for the absorber are typically fiberglass-reinforced plastics (FRP), although carbon-steel vessels lined with rubber or a corrosion-resistant resin material are also used.

ACID-GAS CONTROLS

Control of refuse incinerator acid-gas (HCl, SO_2, SO_3, and HF) emissions is achieved by dry sorbent injection, spray dryer absorption, or wet scrubbing. Each of these types of technologies has been successfully applied to meet existing emissions regulations, however, as emissions limitations become more stringent, the trend is toward spray dryer absorption and wet scrubbing.

Dry Sorbent Injection

Dry sorbent injection (DSI) involves the addition of an alkaline material—usually hydrated lime, $Ca(OH)_2$, or soda ash, $Na_2(CO_3)$—to the gas stream to react with acid gases present, thus producing a salt that is collected in a particulate-collection device. This very simple process can capture up to 90% of the HCl present in the flue gas and about 50% of the SO_2. However, stoichiometric ratios (equivalents of alkali added per equivalents of acid in the flue gas) are high, typically of the order of 2 to 4. Therefore, simple DSI applications are normally limited to small facilities with moderate emissions control requirements.

The overall acid-gas control efficiency of DSI can be improved and reagent consumption decreased by:

- Increasing flue gas humidity
- Recycling reaction products into the flue gas stream

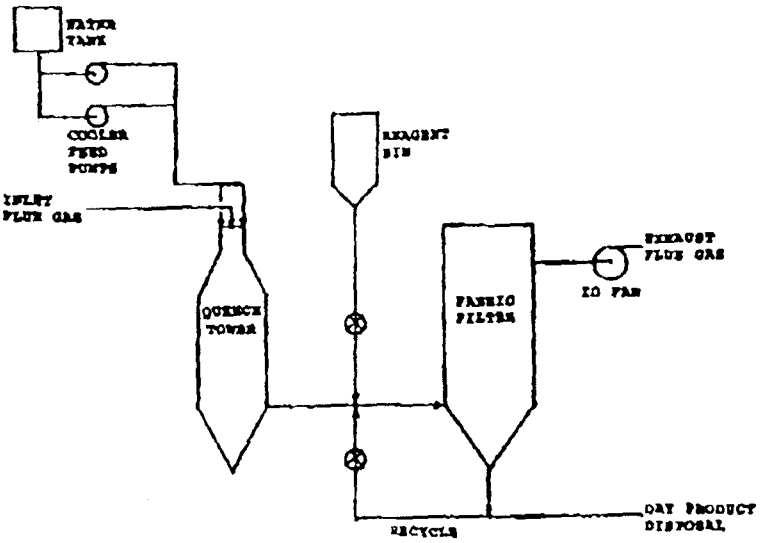

FIGURE 5. Humidification—Dry Sorbent Injection Process

Increasing the flue gas relative humidity can be accomplished by cooling the flue gas using heat exchangers or by quenching the flue gas using water sprays. Both approaches are commercially applied, however, the use of a quench chamber predominates. Figure 5 presents a simplified process flow diagram for a humidification DSI process.

Flue gas from the incinerator enters a three- to five-second retention time cooling tower (or dry quench chamber), where water is sprayed into the gas to lower the temperature. The flue gas temperature leaving the cooling tower is maintained at a temperature high enough to ensure that all water droplets evaporate (300–350°F). Dry reagent is then mixed with the flue gas via pneumatic transport systems or eductor venturis. The reagent reacts with acid gases prior to removal in a dust collector (typically a fabric filter). A portion of the collected reaction products in some cases is reinjected to increase acid-gas removal and decrease reagent consumption. Humidification and reagent-injection steps can also be carried out together in specially designed reactors. This type of process can achieve greater than 95% HCl removal and 90% SO_3 removal at stoichiometric ratios between 1 and 2.

Spray Dryer Absorption

Spray dryer absorption (SDA) has been widely applied for refuse incinerator emissions control and has been specified as best available control technology (BACT) in a number of air permits. The SDA process combines a spray dryer with a dust collector. Reagent addition, flue gas humidification, and some acid-gas absorption take place in the spray dryer. Additional acid-gas absorption and collection of the dry fly-ash reaction products mixture take place in the dust collector. The SDA process is capable of achieving very high removal efficiencies for all acid gases (99+% HCl, 95% SO_2, 99+% SO_3, 95%HF), as well as for the removal of trace metals and organic compounds at stoichiometric ratios between 1 and about 1.8. Figure 6 is a simplified flow diagram for the SDA process.

Incinerator flue gas enters the spray dryer, where it is contacted by a cloud of finely atomized droplets of reagent (typically, a hydrated lime slurry). The flue gas temperature is decreased and the flue gas humidity is increased as the reagent slurry simultaneously reacts with acid gases present and evaporates to dryness. In some systems, a portion of the dried product is removed from the bottom of the spray dryer, while in others, it is carried over to the duct collector. Collected reaction products are sometimes recycled to the feed system to reduce reagent consumption.

Several different spray-dryer design concepts have been employed for incinerator SDA applications. These include single rotary, multiple rotary, and multiple dual fluid nozzle atomization; downflow, upflow, and upflow with a cyclone precollector spray dryers; and single and multiple gas inlets. Flue gas retention times range from 10 to 18 seconds and flue gas temperatures leaving the spray dryer range from 230°F up to 300°F.

Generally, the lower the spray dryer outlet temperature, the more efficient will be the acid-gas absorption. The minimum reliable operating outlet temperature is a function of the spray dryer and dust collector design and the composition of the dry fly-ash reaction product mixture. The spray dryer outlet temperature must be maintained high enough to ensure complete reagent evaporation and the production of a free-flowing product. Low outlet temperature operation requires efficient reagent atomization, good

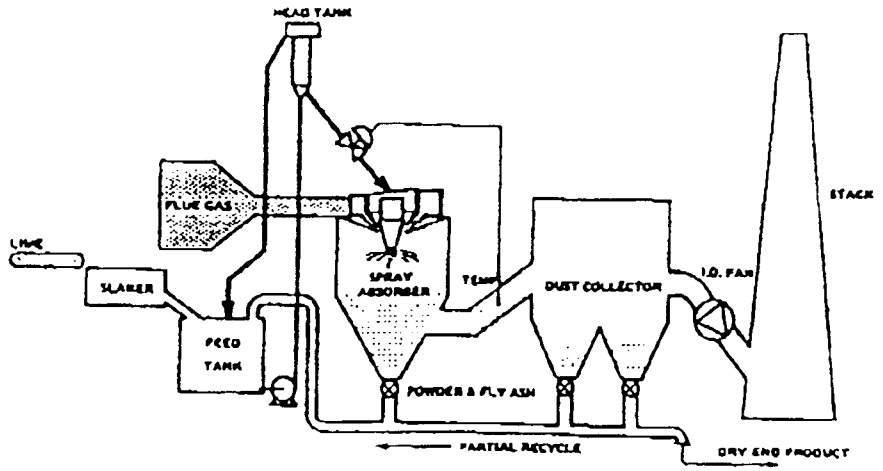

FIGURE 6. Spray Dryer Absorption Process (Courtesy Niro Atomizer)

gas dispersion and mixing, adequate residence time for drying, and design of the dust collector to minimize heat loss and air in-leakage.

The dust collector downstream of the spray dryer may be an ESP, a reverse-air baghouse, or a pulse-jet type of baghouse. The selection of a specific type of dust collector is dependent on such site-specific factors as particulate emission limits, overall acid-gas removal requirements, and project economics. Each of these dust-collection devices offers process advantages and disadvantages that are evaluated on a site-specific basis. Generally, where high acid-gas control is required (95+%HCL, 85+%SO_2), a baghouse is utilized as it is a better reactor than an ESP.

Whether a fabric filter or an ESP is selected as the dust collector, minimization of heat loss from the dust collector to avoid corrosion and increased product stickiness is a prime design consideration. Four methods employed to achieve this are as follows:

- Insulation, to control heat loss
- Control of air in-leakage, to minimize cold spots
- Hopper heating, to maintain product temperature
- Operating procedures to maintain product flowability and minimize cold areas

The end product of the SDA process is a fine hygroscopic material with a significant soluble fraction. It tends to be stickier than MSW fly ash and more difficult to convey and store. Major end-product constituents include:

- Fly ash
- Calcium hydroxide
- Calcium chloride
- Calcium carbonate
- Calcium sulfite
- Calcium sulfate
- Calcium fluoride
- Moisture

The calcium chloride formed at typical spray dryer outlet temperatures is a mixture of mono- and dihydrates ($CaCl_2 \cdot H_2O$ and $CaCl_2 \cdot 2H_2O$) and at lower temperatures will absorb moisture until it reaches the hexahydrate form ($CaCl_2 \cdot 6H_2O$) and melts. Therefore, it is necessary to keep the product from being exposed to cold and/or moist air. This is accomplished by proper design of the product conveying and storage systems.

Wet Scrubbing

Wet scrubbing systems are capable of achieving high acid-gas removal efficiencies and have been applied to a large number of installations in Europe. Typical wet scrubbing applications include two-stage scrubbers located downstream of an ESP. The first stage is used for HCl removal and the second for SO_2 removal. Water is used to capture the HCl and either caustic or hydrated lime is used for SO_2 capture. Figure 4 shows a typical two-stage wet scrubber and Figure 7 shows a process flow diagram for an application of wet scrubbing with fly-ash treatment.

In this process, the HCl stream from the first scrubbing stage is pumped to a fly-ash leaching tank, where it is used to leach out heavy metals from the fly ash collected in the dust collector. After leaching, residual fly-ash solids are either disposed of or used in construction applications. The heavy-metals–bearing HCl stream is then treated alone or with the sodium sulfite–sulfate solution from the second scrubber stage in a neutralization/precipitation stage to concentrate the heavy metals and produce salt-containing wastewater for disposal. When lime is used in the SO_2 absorption section of the scrubber, the calcium sulfite slurry can be oxidized to calcium sulfate (gypsum) for utilization.

Wet scrubbers offer some advantages:

- They are relatively inexpensive to install and require relatively small plot space.

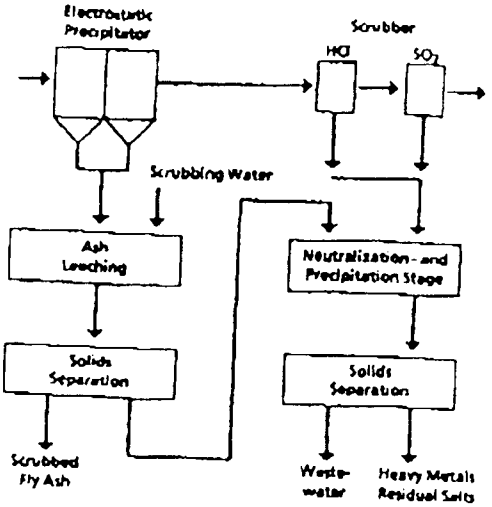

FIGURE 7. Wet Scrubbing with Ash Treatment

- They are capable of achieving very high removal efficiencies for acid gases (99+%HCl, 95+%SO_2).
- They are capable of high removal efficiencies for many volatile trace compounds.
- They require the lowest reagent stoichiometrics (1.0–1.2) of any of the alternatives considered.

Wet scrubbers also have some disadvantages:

- They produce a wet effluent that requires additional treatment with complex effluent treatment systems.
- Economics and space requirements are not as attractive as for the other alternatives.
- Wet scrubbers are more prone to corrosion problems and may require expensive materials of construction.
- Historically, wet scrubbers have experienced more operating problems and higher maintenance requirements than the alternatives.

HEAVY METALS CONTROL

The primary heavy metals of concern from refuse incinerators (arsenic, cadmium, lead, and mercury) are collected in the particulate control device or in the acid-gas control system. Most of these metals exist as solid particulates at incinerator-exit flue gas temperatures and are collected as particulate matter. However, some arsenic, lead, and mercury compounds exist in the vapor state at incinerator flue gas exit temperatures, and these compounds must be collected by condensation through cooling of the flue gas. This can be accomplished with either an SDA or wet scrubbing process.

In the SDA process, the flue gas cooling takes place rapidly in a cloud of finely atomized droplets. These droplets serve as sites on which metals can condense or into which they can be absorbed. The condensed metal is then removed with the reaction products in the downstream dust collector. Collection efficiencies for arsenic and lead at typical SDA system operating temperatures are greater than 90%.

A significant fraction of mercury remains in the vapor phase, even at SDA system outlet temperatures of 250°F. Additions of small amounts of powdered activated carbon or sodium sulfide upstream of the spray dryer have been used to enhance mercury control and greater than 90% capture has been achieved.[9]

Wet scrubbers following a dust collector operate at saturated flue gas temperatures (150–180°F) and can achieve greater than 90% removal of mercury. They can also remove a major fraction of the other metals that may escape the particulate control device.

PCDD/PCDF CONTROL

The PCDD/PCDF emissions are controlled by good combustion practices that inhibit their formations and by particulate and acid-gas controls. Combustion temperatures above 1800°F for more than two seconds are specified as a method of destroying PCDD/PCDF found in the waste stream and their precursors formed from the combustion of other organic and chlorine-containing compounds. However, some PCDD/PCDF compounds may still form downstream of the incinerator on the surface of fly ash at temperatures from 500°F to 700°F.

Control of PCDD/PCDF compounds found in the flue gas leaving the incinerator is achieved by ESPs operating below 450°F or by acid-gas control systems. Acid-gas control systems achieve a higher PCDD/PCDF capture efficiency because of their reduced outlet temperatures and the large droplet surface area available for adsorption to take place. Capture efficiencies of PCDD/PCDF of up to 99% can be achieved and total emissions can be reduced to less than about 10 ng/nm³.

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HAZARDOUS WASTE

Anthony J. Buonicore, P.E.

One of today's major environmental issues is the proper disposal of hazardous waste. Of all the permanent treatment technologies, properly designed incineration systems are capable of achieving the highest overall degree of destruction and control for the broadest range of hazardous waste streams. Over the past 20 years, significant advances have been made in incineration technology, particularly in the air pollution control systems developed to respond to increasingly more stringent regulation. Today, it is not unusual to find air pollution control equipment representing as much as one third of the total installed cost of the hazardous waste incineration system.

PROCESS DESCRIPTION

A wide variety of incinerator types have been developed to handle wastes. Several of these are adaptable, with minimum modification, for hazardous waste application. The selection of the incinerator type for hazardous waste service is made by considering the amounts, types, and properties of the hazardous waste to be destroyed. Among these are the waste's physical form; whether it is a liquid, sludge, or solid; its constituents, such as water and solids; its heating value; and its chemical composition.

Most hazardous wastes are not similar to fuel oil, natural gas, or coal. Moreover, the incinerator will often be required to perform on a variety of waste streams simultaneously. Fortunately, there is a broad variety of proven incinerator designs, the more common of which are liquid injection, multiple-hearth, rotary kiln, and fluidized-bed incinerators.

Liquid Injection

In order for a waste to be incinerated in a liquid injection incinerator, the waste must be pumpable and atomizable (dispersible into very small droplets). The waste is delivered to the incinerator by a conventional pumping system and passes through a burner into the incineration chamber (see Figure 1). The burner has two components—an atomizing nozzle and a turbulent mixing section wherein atomized waste is mixed with sufficient primary air for complete combustion. The ignitable mixture of atomized waste and air burns. The mixture is then turbulently mixed with addi-

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Arizona State Office
P.O. Box 16563
Phoenix, AZ 85011-6563

IN REPLY REFER TO:

1703 (931)

April 5, 1996

Memorandum

To: Bureau of Indian Affairs - Colorado River Agency
Route 1 Box 9-C, Parker, AZ 85344
Attn: Mr. Allen Anspach, Superintendent

From: Deputy State Director, Resource Planning, Use and Protection

Subject: Supplement to Final Environmental Assessment (SEA)

Thank you for the opportunity to comment on the Supplement to Final Environmental Assessment (SEA). The Bureau of Land Management has three concerns on this document. First, the public review time was very limited. Second, the level of public involvement was inadequate. Third, this document appears to leave many unanswered questions.

The first EA in 1990 did not include the public, and this SEA only marginally involved the public. Incineration of hazardous waste typically generates public concern, but this interest or concern cannot be adequately measured in one public meeting with 22 in attendance, 24 minutes long with 2 notices to generate attendance. Of the 22 that attended, only 3 people were not identified as having direct involvement with the proposed action. Since the BLM is a major provider of public recreational opportunities in the vicinity of the project, some representation from this large group of users would be appropriate, (4 million visitor use days).

Questions about the SEA are created early in the documents: for example, in the original EA 20% of spent carbon was hazardous; now the raw material input is 70% hazardous. (SEA 2.3) The treatment of the hazardous waste stream is not adequately covered.

The original EA identifies no heavy metals being emitted from flue gas treatment and flue gases scrubbed with alkaline water (2-5). Appendix H, Table 7-1 in the SEA includes an extensive list of heavy metal emissions. Is this a change from the original proposal? Additionally, is the venturi scrubber now identified different from the original scrubber?

The proposed action increases the reactivation and processing capacity (2-1), doubling the storage capacity from 100,00 to 200,000 gallons (2-3). At any one time 134,181 gallons of hazardous spent carbon can be stored on site, and up to 34,181 gallons can be stored in the spent carbon and waste feed storage tanks (SEA 2-3). Are the "waste feed storage tanks" the same as the hoppers discussed in the 1990 EPA letter to the Bureau of Indian Affairs (BIA) reviewing the Draft EA? It appears that the storage capacity is significantly different from the proposed action of the original EA.

The current waste water discharge permit allows for a discharge of 90,000 gallons per day (gal/day). Modification requested to discharge 120,000 gal/day which is still under the 144,000 gal/day discussed in FEA (2-13). The 144,000 gal/day figure appears to be the water use, not the water discharge as discussed in the original EA. The letter from Colorado River Sewage System Joint Venture to Simon EEI, dated November 5, 1990, acknowledges the use of their facility at 18,700 gal/day. In the original EA, Effect on water source: water usage at facility estimated at 100 gal./minute (4-3), but Effect on water quality: waste water discharge evaluated at 13 gal/minute or 18720 gal/day (4-4). This means even at the 13 gal/minute, the amount of salt discharge into the Colorado River would be 438,000 lbs/year(4-4). This, like the hazardous waste stream, appears significant. Did we miss this analysis in the EA?

Another complete new action not covered in the original EA is the possible addition of acid treatment which is currently performed at Los Angeles manufacturing facility (SEA 2-11). Is this another significant change from the original operation?

In the original EA, EPA was concerned that emission from these devices (thermal treatment units) may present a substantial hazard to human health and environment if they are not controlled. EPA also suggested that RCRA Part B will be required when regulations are promulgated late in 1991 to cover this issue. Now the test burns for Part B application have been run to ensure efficiency of process to verify emissions and determine operating parameters for facility. Unfortunately, Appendix H Table 7-1 in the SEA indicates that test burn 2 was not used in the average of the operation "due to process upsets." Is this an admission that elevated levels of toxins can be released into the atmosphere? Is there air quality monitoring data that would show what the cumulative effect of this type of "upset" causes? What is the dispersal radius of the plume?

The original EA lacked the detailed description of emission estimated calculation to compare to actual emission days from similar operating facilities. In the original EA there were "no units currently in use similar to proposed unit" (2-7). Are there any similar units now that could have been included in the SEA?

In the original EA, Chapter 5, "Air Quality" air emissions will be monitored as standard operating procedures, and periodic plant inspections will be performed by Tribal environmental personnel and professional environmental consultants directed by Tribal authorities (5-1). In the SEA-Chapter 5, Mitigation Air Quality identifies that air emissions are monitored on a continuous basis. Plant inspections will be performed by EPA and Tribal environmental personnel (5-1). If this evaluations took place, they should have been included for review in the SEA. Are they available? Would these results be a good representation that they are running as clean as they state?

Compliance with Environmental Justice was done in 1994 when the original Environmental Assessment was being completed. There does not seem to be any other efforts to meet Environmental Justice with the SEA. What was done to ensure that the minorities and low income populations were informed of the additions to the carbon reactivation plant? (4.F)

Since EPA has regulatory authority over the air emissions, which Act will be used, CAA or RCRA? There appears some conflict between 2-8 on RCRA and 2-15 on the CAA.

Specific Suggested Changes:

The most current information available should be used. Current unemployment rates for Parker were 8.5% (DES Labor Market Information, Research and Analysis, February 1996) (3.C.1).

Unemployment rates for La Paz County were 8.1% (without including Reservation unemployment), 9.9% of total (includes Colorado River Indian Reservation). Unemployment rates for the Colorado River Indian Reservation were 11.6%, down from 14.4% reported in the Supplement.(3.C.2)

The long term benefits for job training and employment will benefit less than 1% of all Tribal members. (4-17)

We are concerned about the Colorado River Indian Tribe's longterm health and prosperity and support their goal for self sufficiency. If you have any questions, please contact Gina Ramos at 602-650-0512.

Michael A. Ferguson

Responses to Bureau of Indian Affairs, Colorado River Agency
Comments Associated with the
Draft Supplement to the Environmental Assessment
Westates Carbon Reactivation Plant Development Project
Colorado River Indian Reservation, Parker, La Paz County
March 25, 1996

Response to Comments by Teh-hong Hsu, Supervisory Hydraulic Engineer

1. Page 4-9, Section 4.A.4.4 Alternative No. 1. -- we suggest that the sentence should be "with respect to land use, the Alternative No. 1 would not differ materially from the Proposed Action.

   Response: The change was made as suggested.

Response to Comments by Mr. Conrad Kresge, Supervisory Soil Conservationist

1. Page 3-3, 3.C.1: The Tribal Industrial Park is located on the Reservation, near or adjacent to the Town of Parker, not in Parker itself.

   Response: The text has been revised to reflect this comment.

2. Page 3-3, 3.C.2: There are only approximately 23,000 additional acres available for agricultural development, rather than 50,500.

   Response: This change has been incorporated.

3. Page 4-9, 4.A.5: The increased truck traffic would impact the condition of both Shea Road and Mutahar Street, thereby affecting those who use these roads for purposes other than for Westates Carbon. This is an impact on people that should be addressed. Also, are mitigation measures in place that provide for the maintenance of these roads as related to Westates Carbon truck traffic.

   Response: Text has been added to Section 4.A.5 to acknowledge that the increase in truck traffic may increase the deterioration of these roads and that this is a long-term effect that can be mitigated by routine road maintenance.

   No specific mitigation measures are proposed to provide for additional maintenance of these roads as related to Westates Carbon truck traffic because routine road maintenance should suffice. Note: No maintenance has been performed on these roads since the start of operations at Westates Carbon four years ago. While there will be an increase in truck traffic, the total number of truck trips associated with the facility is not large and the other traffic volume on the roads is very low, there is no evidence that additional mitigation is warranted.

4. Page 4-13, 4E: Safety measures in place for the workers themselves should be addressed unless adequately covered in the initial EA.

   Response: Text has been added in Section 4E describing the personnel training program that has been implemented at the facility.

5. Page 4-18, 4.I, Long-Term Impacts - Adverse: Add the impact on the condition of Shea Road and Mutahar Street as a result of increase truck traffic.

   Response: This long-term impact has been added in Section 4.I.

6. Page 4-19, Table 4-1, under Transportation Network: Based upon earlier text, e.g., page 4-5, increased traffic would be from 1 to 2 additional trucks per day (not week). And, the explanation on page 2-19 does not seem to be clear enough to support one truck trip per week increase from the initial EA.

   Response: Table 4-1 has been revised to reflect the text found on page 4-5 (this was the correct statistic).

   The explanation on page 2-19 addresses the increase in truck traffic related to the warehousing building -- not overall truck traffic to the facility.

7. Page 7-1: Mr. "Centley" should be "Cantley".

   Response: This change was made.

Response to Comments by Annette Young Bird, Realty Specialist

As a background, the lease states the following PURPOSE:

1. Construction and operation of carbon reactivation plant
2. Fabricating carbon reactivation pollution control devices and air strippers
3. Servicing these same devices and air strippers

The above are to be done in a phased manner. The company is to ...develop premises only for these purposes and ... only these expansion needs...shall be entitled to utilize any improved technology developed hereafter. (emphasis added)

Any "...additional purpose....authorized by written consent....."

Response: The carbon reactivation plant is continuing to use the property in accordance to the lease agreement in that there are no different uses being sought in the Supplemental EA other than items 1,2 and 3 mentioned above and in the lease. Since there is no additional or other uses being requested, additional authorization is not required.

1. Also, in a letter dated 11/07/95 from Westates to EPA requests reactivation capacity form 2760 lbs/hr to 4140 lbs/hr. Are these pounds wet pounds?

   Response: Typically, a carbon reactivation plant is rated by the amount of reactivated carbon product it produces, however, EPA requested that for its purposes it wanted the plant rated by the input the reactivation unit. This would be the spent carbon which includes water and contaminant loading. 2760 lb/hr of spent carbon is approximately equivalent to 1200 lbs/hr of reactivated product and 4140 lb/hr is approximately equivalent to 1800 lb/hr of reactivated product.

2. Would this expansion affect general plans or architect's design to require Lessor consent?

   Response: The general plans and architect's designs for the expansion have been approved via the building permit process and by Tribal resolution.

3. Would improvements need to be covered by bonds as in Article 14?

   Response: Bonds have been secured for the expansion.

4. Are insurance policies up to date and on file?

   Response: Insurance policies are up to date and on file at the facility.

5. Also, there was a general meeting held 10/04/94 to address the pre-application of Westates. Of those who attended, only five of the 23 were not affiliated with Westates. The advertisement of this meeting was published once in the Parker Pioneer as a "notice". The announcement was aired one time only at 6:23 a.m. by KLPZ on 8/25/94.

   Response: The public notice provisions for the meeting were designed to be consistent with the EPA's proposed expanded public notice participation regulations. The methods that were used to provide public notice were discussed with EPA and the Tribe before they were implemented.

6. Page 2-6 2.A.2.1.5 Flue Gas Treatment
   If the performance fails, what happens? Also, will a performance check be done annually? semi-annually? quarterly?

   Response: As discussed in Section 2.A.2.1.7 of the SEA, performance is monitored on a continuous basis. Should a monitor indicate that a parameter is outside a pre-determined range, action is taken to correct the problem. Certain out-of-range parameters will cause an automatic shutdown of the reactivation process.

7. Page 2-11 2.A.2.2.2 Acid Treatment
   Is the process going to mix hydrochloric acid on a basis of 15 percent to 85 permit reactivated liquid carbon? Or is the process to use a 15 percent solution to add to the reactivated liquid carbon? What happens to the excess liquid.

   Response: The reference "reactivated liquid carbon" does not refer to a liquid. The proper terminology is "liquid-phase reactivated carbon" and refers to the type of service in which the carbon will be utilized (i.e., liquid-phase reactivated carbon is used to remove contaminants from liquid streams and vapor-phase reactivated carbon is used to remove contaminants from gaseous streams). The reactivated product itself is a dry solid. 15 percent hydrochloric acid refers to the strength of the acid. A 15 percent solution of hydrochloric acid means, for example, that 15 milliliters of 100% hydrochloric acid is mixed with 100 milliliters of water. The solution is totally adsorbed on the carbon and there is no excess liquid.

8. There is no Page 4-10.

Response: Page 4-10 was inadvertently omitted from the last revision. It is included in the latest revision.

9. Appendix K: Are there three buildings? Storage-Office-Packaging?

   Response: Yes

10. Appendix M: Capacity of 1800 lbs/hr in statement by Mr. McCue. This Supplement is for 1200 lbs/hr. Or is this Supplement for 1200 lbs/hr furnace only and the 600 lbs/hr furnace would still be in place? This would generate the 1800 lbs/hr talked about by Mr. McCue.

    Response: This supplement addresses the increase in capacity from the 1000 lb/hr discussed in the original EA to 1200 lb/hr. As discussed in Chapter 1 of the SEA, the 1200 lb/hr production rate will be accomplished by the installation of a second reactivation unit capable of generating 1200 lb/hr of reactivated product. The original 600 lb/hr unit will be disabled in place. At a later date, Westates Carbon will make a business decision as to whether to attempt to recommission the 600 lb/hr unit (increase the facility capacity to 1800 lb/hr). EPA, BIA and Tribal approvals would be required before the 600 lb/hr unit could be recommissioned.

11. Page 2-13 Administrative Building
    What happens to the "three small buildings" the proposed building will replace?

    Response: These buildings will be removed from the plant site.

12. 2.A.3.1 Clean Water Act (CWA)
    Pre-treatment program - Will the program handle the additional 30,000 gallons per day?

    Response: Currently, the publicly-owned treatment works (POTW) [Colorado River Sewage System Joint Venture] utilizes approximately 50% of its treatment capacity (total capacity is approximately 1,200,000 gallons per day). Therefore, the POTW can handle an additional 30,000 gallons per day.

13. Page 2-15 First Full Paragraph - The statement "...EPA must approve the expansion...." implies that EPA had no choice in this; is this a true statement?

    Response: The purpose of the statement was to indicate that the expansion could not take place without prior EPA approval. The text has been revised to reflect this purpose.

14. Page 2-16 Has EPA issued a "full permit" to Westates?

    Response: As stated in Section 2.A.3.3 on page 2-16, it is currently anticipated that EPA will issue a permit decision within 12 months.

15. Page 2-17 First Full Paragraph - What about hydrochloric acid?

    Response: This section reflects the chemicals for which notification is currently required. Currently, hydrochloric acid in the quantities required for notification are not present at the facility. When, and if, hydrochloric acid is present on site in quantities that require notification, notification will be made.

16. Page 3-2 3.B BIOLOGICAL ENVIRONMENT
Does this need an updated listing of endangered species?

Response: The most current endangered species list was checked. No new species have been added to the list since the preparation of the original EA that are indigenous to the Parker area.

17. Page 3-3 3.C.2. Colorado River Indian Reservation
Sentence beginning "Employment for area Indians is derived from federal, state and tribal agencies providing local services to the reservation. "should either have the word "data" inserted after "Income" or be rewritten.

Response: The sentence has been revised to reflect the intent of the sentence was to reference the employment statistics in the next paragraph.

18. Pages 3-3 and 3-4
This section needs to be rewritten. The total **resident Indian** population is **1836** with a potential labor force of **607**. There are approximately **3126 total enrolled tribal members** for CRIT **living on and off** the **reservation**. The total resident population for the reservation should also include the non-tribal residents to get a true labor force for this area.

Response: This section has been revised to reflect the comment.

19. Page 4-7 Sentence beginning with "Concentration of these materials will not increase...." indicates probably there would not be a **per gallon** increase, but it would seem that overall there is a cumulative increase because of the increased flow of 30-40,000 gallons.

Response: The wastewater will be treated at the local POTW which has the capacity to treat the increased flow (see question 12 above). Because the concentration will not increase, the treatment efficiency will not be impacted.

END

Responses to April 4, 1996 Environmental Protection Agency (David Tomsovic)
Comments Associated with the
Draft Supplement to the Environmental Assessment
Westates Carbon Reactivation Plant Development Project
Colorado River Indian Reservation, Parker, La Paz County
April 8, 1996

1. Air Pollution Control Technology/Air Mitigation: The SFEA describes the air pollution control system that would be implemented as part of the project, including a discussion of flue gas treatment and protection against release of contaminants (pp. 2-6 and 2-7) and a mitigation discussion (p. 5-1). There is also a discussion (pp. 2-14 and 2-15) that because the facility expansion is not subject to EPA's PSD permitting requirements (40 CFR 52.21), the criteria pollutant emissions levels are not Federally-enforceable. Because the criteria pollutant emissions levels are not Federally-enforceable, we believe that the air pollution controls and mitigation measure discussed in the SFEA are particularly important from both public health and environmental perspectives. We therefore recommend that the various air pollution control elements discussed in the SFEA be included by reference in the FNSI's mitigation commitments.

   Response: The facility's control equipment is covered by the federally-enforceable provisions of 40 CFR Part 60, Subpart FF. Additionally, the facility's RCRA treatment, storage, and disposal facility permit will impose federally-enforceable requirements on the facility.

2. Lead and Other Metal Emissions; The expansion project would result in emissions of heavy metals such as lead, arsenic, cadmium and mercury (SFEA, Table 7-1). As we discussed, EPA believes it would be beneficial for BIA to discuss with Westates Carbon-Arizona, Inc. whether it may be technically feasible to further reduce heavy metal emissions such as lead (without compromising any other emission controls at the facility.). This would be especially important if lead-sensitive receptors were adjacent to or downwind from the facility (i.e., schools, childcare centers, etc.). For reference, I've attached a section from an air pollution engineering manual on municipal waste combustion facilities (refuse incineration). Although refuse incineration may present a different range of impacts that the Westates Carbon-Arizona, Inc. facility, the attached section could present an opportunity to further reduce the facility's heavy metal emissions. EPA encourages BIA to discuss this with Westates Carbon-Arizona, Inc. and/or consultant. We recommend that the FNSI discuss whether it is or may be possible to reduce the facility heavy metal emissions without compromising controls currently in place, approved or proposed.

   Response: The source of most of the metals emitted during the reactivation process are from the sources of carbon (coal and coconut) used to manufacture virgin activated carbon. However, the concentration of these metals can vary. The air pollution control equipment to be installed at the facility is described in 2.A.2.1.7. This equipment was selected to **minimize** particulate matter (including metals), organic and acid gas emissions. As discussed in section 2.A.2.1.9, the RCRA Part B application includes proposed limits for these emissions that are protective of human health and the environment.

   Additionally, the facility has a metal testing program in place to ensure the levels of metals in the incoming spent carbon are less than the levels proposed in the RCRA Part B application. Actual testing has indicated that the average metal concentrations in the actual spent carbon received at the facility are significantly lower than the proposed levels.

3. Pollution Prevention: The SFEA did not specifically recognize the Council on Environmental Quality (CEQ) memorandum (1/29/93 Federal Register - copy attached) on incorporating pollution prevention features in Federal agency NEPA documents. In it, CEQ encouraged Federal agencies to integrate pollution prevention features in NEPA planning and decisions. In its memo, CEQ wrote that "...any reasonable mechanism which successfully avoids, prevents, or reduces pollutant discharges or emissions other than by the traditional method...should...be considered pollution prevention." For your reference, I've enclosed a copy of CEQ's 1993 memo and two checklists from EPA's POLLUTION PREVENTION/ENVIRONMENTAL IMPACT REDUCTION CHECKLISTS (checklists for hazardous waste incinerators and waste storage/treatment facilities). we recognize that a number of the checklist suggestions may prove inapplicable or inappropriate. Nevertheless, we encourage BIA, in cooperation with Westates Carbon-Arizona, Inc.,. to review the enclosed checklists as a basis for a pollution prevention program for the project and facility. We suggest that the FNSI reflect a commitment to implement reasonable pollution prevention measures and that, as appropriate, the FNSI reference any checklist that be adopted.

Response: A review of the referenced checklists indicate that all of the issues that are applicable to the facility were addressed in the facility's RCRA Part B permit application.

END

Responses to April 5, 1996 Bureau of Land Management (Michael A. Ferguson)
Comments Associated with the
Draft Supplement to the Environmental Assessment
Westates Carbon Reactivation Plant Development Project
Colorado River Indian Reservation, Parker, La Paz County
April 8, 1996

1. The first EA in 1990 did not include the public, and this SEA only marginally involved the public. Incineration of hazardous waste typically generates public concern, but this interest or concern cannot be adequately measured in one public meeting with 22 in attendance, 24 minutes long with 2 notices to generate attendance. Of the 22 that attended, only 3 people were not identified as having direct involvement with the proposed action. Since the BLM is a major provider of public recreational opportunities in the vicinity of the project, some representation from this large group of users would be appropriate, (4 million visitor use days).

   Response: As stated in Section 4.F (page 4-15) of the SEA, WCAI voluntarily participated in the Expanded Public Participation program prior to the submittal of the RCRA Part B application. The methods that were used to provide public notice were discussed with EPA and CRIT legal and environmental representatives before they were implemented. The facility changes described at the public meeting are the same issues that are addressed in the SEA.

   For clarification the spent carbon is not incinerated at the facility but is regenerated for reuse. Therefore it is not an incinerator but a thermal treatment unit designed for the recycling of spent carbon.

2. In the original EA 20% of spent carbon was considered hazardous; now the raw material input is 70% hazardous. (SEA 2.3). The treatment of the hazardous waste stream is not adequately covered.

   Response: The change in the percentage of raw material input that is RCRA hazardous is because of the difference in the anticipated market at the time of preparation of the original EA and actual market conditions after start of operation of the facility.

   This spent carbon reactivation process is described in Section 2.A.2 of the SEA. The reactivation process is the same for both hazardous and non-hazardous spent carbons. (i.e., all spent carbons are handled as if they were hazardous at the facility).

3. The original EA identifies no heavy metals being emitted form flue gas treatment and flue gases scrubbed with alkaline water (2-5). Appendix H. Table 7-1 in the SEA includes an extensive list of heavy metal emissions. Is this a change from the original proposal? Additionally, is the venturi scrubber now identified different from the original scrubber?

   Response: Low concentrations of metals are found in the raw materials used to manufacture virgin activated carbon (e.g., there are metals in coal), therefore, metals are found in activated carbon. Additionally, some metals are adsorbed during the use of activated carbon. Because metals are present in the spent carbon being reactivated at the facility, metals are present in the flue gas stream. At the time of the preparation of the original EA, no data was available

indication the presence of metals in the flue gas streams from spent carbon reactivation facilities. This information was available at the time of the preparation of the SEA and was included. The data presented in Table 7-1 is from stack tests preformed to determine particulate matter emission rates (i.e., highest expected). The spent carbon reactivated during the test was selected because it represented the worst-case metals loading. On-going monitoring of the incoming spent carbon reactivated at the facility indicates that the average metal loading on the actual spent carbons reactivated at the facility is much less than the spent carbon reactivated during the test.

Section 2.A.2.1.5 describes the pollution control equipment to be used to control pollutant emissions from the flue gas. The original EA listed as pollution control equipment both a venturi scrubber and a packed bed (alkaline) scrubber. The venturi scrubber is for particulate matter control and the packed bed scrubber is for acid gas control. Both of these devices were installed and are in operation. The expanded facility will include both of these pollution control devices in addition to a wet electrostatic precipitator (WESP). The WESP will enhance particulate matter, and thus metals, removal from the flue gas stream.

4. The proposed action increases the reactivation and processing capacity (2-1), doubling the storage capacity from 100,000 to 200,000 gallons (2-3). At any one time 134,181 gallons of hazardous spent carbon can be stored on site, and up to 34,181 gallons can be stored in the spent carbon and waste feed storage tanks (SEA 2-3). Are the "waste feed storage tanks" the same as the hoppers discussed in the 1990 EPA letter to the Bureau of Indian Affairs (BIA) reviewing the Draft EA? It appears that the storage capacity is significantly different from the proposed action of the original EA.

Response: Section 2.A.2.1.2 describes the storage capacity of the facility. As stated in this section, the increase in container storage from 100,000 gallons to 200,000 gallons will require EPA approval in the form of a RCRA Part B treatment, storage, and disposal facility permit.

The "waste feed storage tanks" are the hoppers referenced in the 1990 EPA letter to BIA.

5. The current waste water discharge permit allows for a discharge of 90,000 gallons per day (gal/day). Modification requested to discharge 120,000 gal/day which is still under the 144,000 gal/day discussed in SEA (2-13). The 144,000 gal/day figure appears to be the water use, not the water discharge as discussed in the original EA. The letter from Colorado River Sewage System Joint Venture to Simon EEI, dated November 5, 1990, acknowledges the use of their facility at 18,700 gal/day. In the original EA, Effect on water source: water usage at the facility estimated at 100 gal/minute (4-3), but Effect on waster quality: waste water discharge evaluated at 13 gal/min or 18,720 gal/day (4-4). This means even at the 13 gal/minute, the amount of salt discharge into the Colorado River would be 438,000 lb/year (4-4). This, like the hazardous waste steam, appears significant. Did we miss this analysis in the EA?

Response: The original EA anticipated that the discharge to the Colorado River Sewage System Joint Venture (CRSSJV) would be much more concentrated than what is currently, and will be, discharged to the CRSSJV. Also the original EA anticipated the facility to be more of a net water user than is actually the case, resulting in an increase in the amount of wastewater discharged to the CRSSJV. Based on 120,000 gal/day, the discharge of salts to the CRSSJV because of facility operations is approximately 365,300 lb/year - less than the 438,000 lb/year anticipated in the original EA.

6. Another complete new action not covered in the original EA is the possible addition of acid treatment which is currently performed at Los Angeles manufacturing facility (SEA 2-11). Is this another significant change from the original operation?

Response: As stated in Chapter 1 of the SEA, the addition of acid treatment is a change from the original operation. This is the reason it was included in the SEA. The acid treatment process is described in Section 2.A.2.2.2 of the SEA. Based on an analysis of the impacts of the acid treatment process, as presented in the SEA, the impacts are not significant.

7. In the original EA, EPA was concerned that emissions from these devices (thermal treatment units) may present a substantial hazard to human health and environment if they are not controlled. EPA also suggested that RCRA Part B will be required when regulations are promulgated late in 1991 to cover this issue. Now the test burns for the Part B application have been run to ensure efficiency of the process to verify emissions and determine operating parameters for the facility. Unfortunately, Appendix H Table 7-1 in the SEA indicates that test burn #2 was not used in the average of the operation "due to process upsets". Is this an admission that elevated levels of toxins can be released into the atmosphere? Is there air quality monitoring data that would show what the cumulative effect of this type of "upset" causes? What is the dispersal radius of the plume?

Response: Table 7-1 in Appendix H is a summary of the results of emissions testing performed on the existing furnace. The test consisted of three runs. Each run did not represent a "test burn". Only the results of the first and third test were considered valid since the variability in the process operations during the second run were not considered to be representative or normal operation. Even though the second run was not used in averaging the results of the test, examination of the data from the second run shows that the results from the second test run were similar to the results of the first and third test runs.

Additionally, as discussed in Section 2.A.2.1.7 carbon monoxide emissions, afterburner temperatures, and certain air pollution control device operating monitors will be monitored continuously by instrumentation. The monitoring of these parameters will be indicative of proper operation of the reactivation process.

8. The original EA lacked the detailed description of emission estimated calculation to compare to actual emission days from similar operating facilities. In the original EA there were "no units currently in use similar to the proposed unit" (2-7). Are there any similar units now that could have been included in the SEA?

Response: At the time of the preparation of the original EA, there were no similar units in use. However, since that time, WCAI has collected data from it's existing operations. These data are presented in Section 2.A.2.1.9 and Appendix H of the SEA. These are considered to be representative of emissions from the expanded facility.

9. In the original EA, Chapter 5, "Air Quality" air emissions will be monitored as standard operating procedures, and periodic plant inspection will be performed by Tribal environmental personnel and professional environmental consultants directed by Tribal authorities (5-1). In the SEA - Chapter 5, Mitigation Air Quality identifies that air emissions are monitored on a continuous basis. Plant inspections will be performed by EPA and Tribal environmental

personnel (5-1). If these evaluations took place, they should have been included for review in the SEA. Are they available? Would these results be a good representation that they are running as clean as they state?

Response: EPA, consultation with CRIT, inspects the facility approximately every six months. During the initial inspection, some issues were found that have subsequently been addressed. The four inspections following the initial inspection have not resulted in any findings. EPA submits the results of the inspections to CRIT, BIA, and the Arizona Department of Environmental Quality. The results of the inspections to date are an excellent indication of WCAI's continued commitment to compliance with environmental regulations.

10. Compliance with Environmental Justice was done in 1994 when the original Environmental Assessment was being completed. There does not seem to be any other efforts to meet Environmental Justice with the SEA. What was done to ensure that the minorities and low income populations were informed of the additions to the carbon reactivation plant? (4.F).

Response: The original was completed in 1991. The discussions on Environmental Justice found in the SEA in Section 4.F is in reference to compliance with Executive Order 12898 (Environmental Justice) for the proposed action addressed in the SEA. See response to Item 1 above.

11. Since EPA has regulatory authority over the air emissions, which Act will be used, CAA or RCRA? There appears some conflict between 2-8 on RCRA and 2-15 on the CAA.

Response: The facility is subject to the implementing regulations of both the CAA and RCRA. These regulations may address similar subjects and impose similar requirement, however, the facility must be in compliance with both sets of regulations. In the event there are similar requirements, the most stringent of the requirements must be met.

12. Specific Suggested Changes:

The most current information available should be used. Current unemployment fates for Parker were 8.5% (DES Labor Market Information. Research and Analysis, February 1996) (3.C.1).

Unemployment rates for La Paz County were 8.1% (without including Reservation unemployment), 9.9% of total (includes Colorado River Indian Reservation). Unemployment rates for the Colorado River Indian Reservation were 11.6%, down from 14.4% reported in the Supplement (3.C.2).

The long term benefits for job training and employment will benefit less than 1% of all Tribal members. (4-17).

Response: It is recognized that employment data will fluctuate over time. The values presented in the SEA were a "snap shot" of the employment in the area at the time drafts of the SEA were prepared.

END

APPENDIX Q

APPENDIX Q

DISCHARGE LIMITATIONS COMPARISON BETWEEN COLORADO RIVER SEWAGE SYSTEM JOINT VENTURE AND WESTATES CARBON-ARIZONA, INC.

EFFLUENT CHARACTERISTIC	COLORADO RIVER SEWAGE SYSTEM JV	WESTATES CARBON-ARIZONA, INC.
FLOW (GPD)	N/A[1]	120,000
BIOCHEMICAL DEMAND	45 mg/l [2]	N/A[1]
TOTAL SUSPENDED SOLIDS (TSS)	9007 lbs.[5] (influent)	755 lbs.
FECAL COLIFORM	800/100 ml [3]	N/A[4]
SETTLEABLE SOLIDS	2 ml/l [3]	N/A[4]
TOTAL DISSOLVED SOLIDS (TDS)	4003 lbs.	1000 lbs.
TOTAL RESIDUAL CHLORINE	11 μg/l	N/A[4]
PH	6.5-9.0	5.5-9.0

FOOTNOTES:

(1) Monitoring and reporting required. No set limit at this time.
(2) Represents weekly average maximum.
(3) Represents daily maximum.
(4) Not required to be monitored or reported.
(5) Estimate based on actual reported removal efficiencies

United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
COLORADO RIVER AGENCY
Route 1, Box 9-C
Parker, Arizona 85344

IN REPLY REFER TO:

Real Estate Services
(602) 669-7142

MAR 01 1991

Dear Interested Party:

Please find enclosed a copy of the Final Environmental Assessment for the Westates Carbon Reactivation Plant Site Project, in Parker, LaPaz County, Arizona (February 1991), for the proposed action to lease 10 acres of the Colorado River Indian Reservation.

Thank you for your interest in the environmental effects of the proposed action. If there are any questions, please contact Bureau of Indian Affairs, Colorado River Agency, Real Estate Services at (602) 669-7142, or at the address listed above or on the cover page of the document.

Sincerely,

Superintendent

Enclosure

NOTICE OF AVAILABILITY

Department of the Interior
Bureau of Indian Affairs

Notice of Availability of a final Environmental Assessment and Finding of No Significant Impact for the Westates Carbon Inc., Reactivation Plant Site on the Colorado River Indian Reservation, Parker, La Paz County, Arizona.

AGENCY: Bureau of Indian Affairs

ACTION: Notice of Availability

SUMMARY: This notice advises the public that a Final Environmental Assessment (EA) and Finding of No Significant Impact (FONSI), evaluates the relevant areas of environmental concern for a 10 acre proposed lease area, has been prepared for the development of a carbon reactivation plant site on the Colorado River Indian Reservation in Parker, Arizona. This document is available for public review.

ADDRESS: Comments should be addressed to:

Bureau of Indian Affairs
Phoenix Area Office
Environmental Services
P. O. Box 10
Phoenix, AZ 85001

or

Bureau of Indian Affairs
Colorado River Agency
Rt. 1 Box 9-C
Parker, AZ 85344

For further information contact:

Bureau of Indian Affairs
Phoenix Area Environmental
Services (602) 379-6781

or

Bureau of Indian Affairs
Colorado River Agency
Real Estate Services
(602) 669-7142

Individuals wishing copies of this environmental assessment for review should immediately contact the referenced offices.

SUPPLEMENTAL INFORMATION:

The EA discloses and evaluates the relevant areas of environmental concern.

This action is designed to reduce any environmental impacts to a minimum with required mitigation commitments.

This action will result in no adverse impacts.